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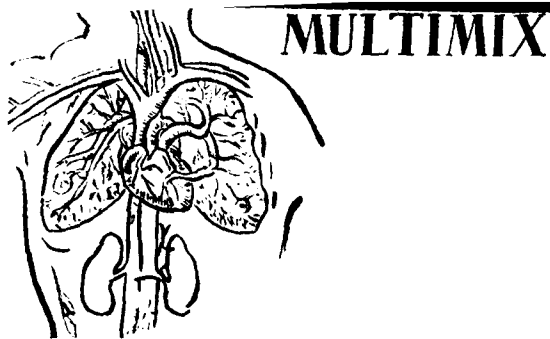
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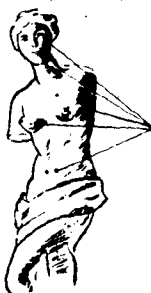


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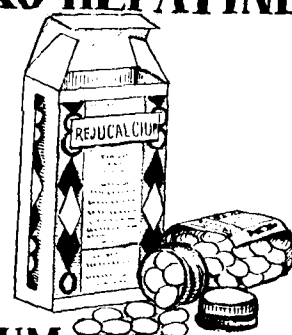
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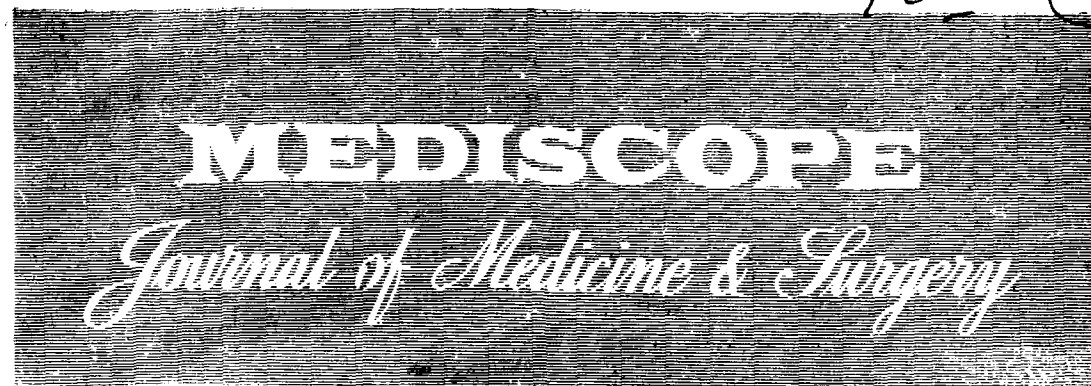


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Congenital Subaortic Stenosis with Patent Interventricular Septum

A CASE REPORT

By

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Congenital subaortic or aortic stenosis is a very uncommon condition and the association of the former with a patent interventricular septum can be considered a clinical rarity. No such case has been reported in India till now and a survey of the world literature for a period extending over 25 years revealed that the number of cases of subaortic stenosis recorded is less than 50. Subaortic stenosis is due to a developmental anomaly of the bulbus cordis and its combination with a patent interventricular septum can be explained on an embryological basis. The latter condition may be missed clinically in these cases

because the thrill and murmur of the interventricular septal defect heard lower down to the left of the sternum may be overshadowed by the thrill and loud systolic murmur of the stenosis in the aortic area. This is particularly so if no separate thrill is felt in the third left intercostal space. A careful examination is therefore required to diagnose these two separate congenital abnormalities and the diagnosis can be confirmed by radiological and electrocardiographic findings.

CASE REPORT

S., a female Muslim child, aged 6 years, attended this hospital on 18th

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February, 1952, for the treatment of diarrhoea and other minor ailments. Her general development, intelligence and milestones in life were all normal. There was no previous history of rheumatic fever or any other illness. Other siblings normal.

On examination of the cardio-vascular system: No visible pulsation or distended veins seen in the neck. No cyanosis or clubbing of fingers. Pulse rate-120 beats per minute, regular, volume and tension good. Apex was within the midclavicular line. A marked systolic thrill was palpable on the right side of the sternum in the aortic area. Lower down another systolic thrill, not so marked as the one felt in the aortic area could be palpated in the third left intercostal space. This thrill was distinct from the thrill in the aortic area. On auscultation, a very harsh systolic murmur was heard in the aortic area. This murmur was conducted into the neck and could be heard with equal intensity there. A murmur of a lesser intensity, systolic in time, entirely distinct from the murmur in the aortic area, was heard in the third left intercostal space close to the sternum. This murmur was found to be confined to this area. Second sound in the aortic area was loud and not replaced by a murmur. Heart sounds in all the other areas were normal.

Blood Pressure: 104/70 m.m. Hg.

Screening: Showed the transverse diameter of the heart to be increased particularly to the right. In the right oblique position the cardiac shadow

had markedly encroached upon the retrosternal space suggesting an enlargement of the right ventricle. A barium swallow was given and the left auricle was not seen to be enlarged. In the left oblique position the left ventricle was seen to be normal in size and configuration—there was a clear space between it and the vertebral column.

Skiagram: Confirmed the normal appearance of the left ventricle and enlargement of the right ventricle. (Plate I & II)

Electrocardiogram: Showed a prominence of S wave in Lead I and R wave in Lead III i.e. a Right Axis Deviation. (Plate III)

A diagnosis of congenital subaortic stenosis with patency of interventricular septum was made.

DISCUSSION

The first question that had to be decided was whether the lesion was a congenital or an acquired one of rheumatic origin. A pure aortic stenosis of rheumatic aetiology is very unusual at such early age, especially so when there is no associated regurgitation. The absence of any previous history of rheumatic fever or other illness and the normal findings in the mitral area (the mitral valve being more often involved in rheumatic affection of the heart) were other points which made us decide that the lesion was congenital in origin.

This congenital heart obviously belonged to the acyanotic or potentially cyanotic (cyanosis tardive) group. A consideration of the site of the thrill and

murmur would definitely enable one to exclude pulmonary stenosis, interauricular septal defect and patent ductus arteriosus. Aortic or subaortic stenosis was the only possible diagnosis that could be arrived at of the lesion in the aortic area. The thrill and murmur heard to the left of the sternum in the third intercostal space was diagnosed as being due to a patent interventricular septum. In the case reported the thrill and murmur at the two sites were so distinct and separate that we had no hesitation in making the diagnosis. Moreover, in pure aortic or subaortic stenosis one finds a normal heart or left ventricular enlargement and never a right sided enlargement, unless failure sets in. Electrocardiogram shows a normal tracing or left axis deviation. The radiological and electrocardiographic findings of right sided cardiac enlargement with a normal left side in the cases reported here can be explained only by the presence of an interventricular septal defect through which the blood is shunted from the left to the right ventricle. Our clinical findings were therefore corroborated by radiological and electrocardiographic findings.

The next important question that we had to decide was whether the lesion in the aortic area was an aortic or a subaortic stenosis. This question is an extremely difficult one to settle just on the clinical findings. But it is of great importance from the point of view of prognosis. Aortic stenosis cases die fairly young while subaortic stenosis cases have a better prognosis unless

there is a complication of bacterial endocarditis. In a series of cases analysed by Maude Abbott the maximum age at the time of death was 58 years in subaortic stenosis, while it was only 24 years in aortic stenosis. It is said that pulsus tardus, a diminished or absent second sound in the aortic area, a low blood pressure, besides the symptoms of retarded growth, giddiness, pallor, praecordial pain etc. are usually present in aortic stenosis. Subaortic stenosis, however, does not offer obstruction to the egress of blood from the left ventricle and these findings are therefore absent. But in a severe case of subaortic stenosis there may be obstruction to the flow of blood from the left ventricle resulting in stunted growth, a low blood pressure, pulsus tardus etc. Similarly a mild case of aortic stenosis may present no signs or symptoms whatsoever. The presence of an interventricular septal defect is however, in favour of subaortic stenosis and the association of subaortic stenosis with patent interventricular septum is, as will be explained below, due to a common anomaly in the development of the bulbus cordis. It was the normal physical development of the child, the absence of symptoms, the normal pulse, second sound in the aortic area and blood pressure, and the presence of the interventricular septal defect that made us diagnose the condition as subaortic stenosis.

EMBRYOLOGY

The pathological finding in subaortic stenosis is a band of fibrous tissue which

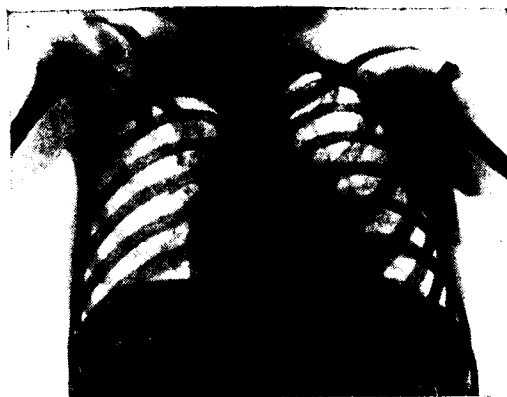
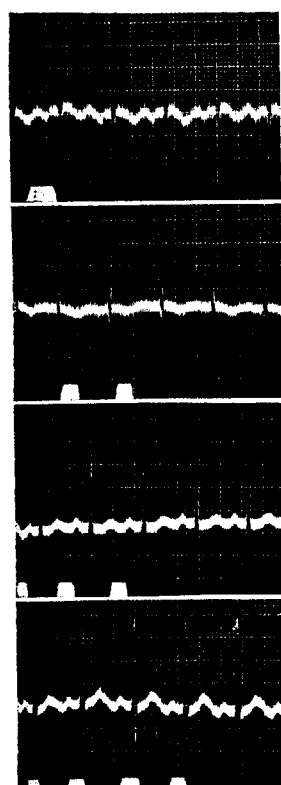


Plate I



Plate II

Plate III.



The Early Stages of the Development of the Heart (Reproduced from Congenital Heart Disease (1950). James W. Brown.

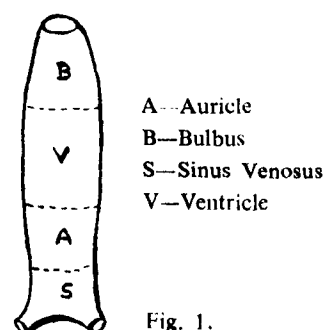


Fig. 1.

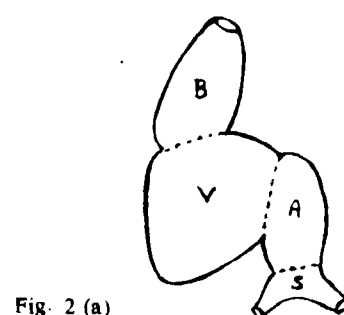


Fig. 2 (a)

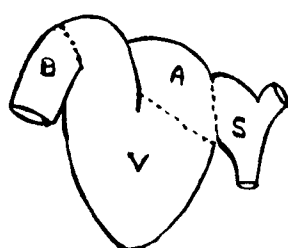


Fig. 2 (b)

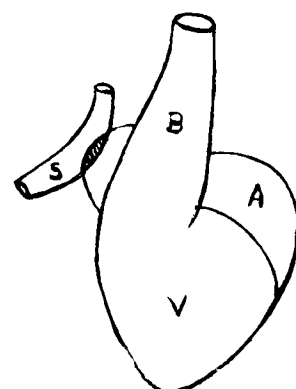


Fig. 3

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in an adult lies approximately 1 c.m. below the aortic valve. This band is present in early embryonic life, but normally atrophies and disappears as the foetus grows. One can understand this better by studying the embryonic development of the heart and blood vessels. In early foetal life the human heart is a tube like structure consisting of the sinus venosus, auricle, ventricle, bulbus cordis and truncus arteriosus. (Fig. 1). With rapid growth this tube becomes kinked and rotated into an S-shape. The ventricle is now anterior forming a bulbo-ventricular loop with the bulbus cordis, the bulbo-ventricular cleft intervening between these two structures. (Figs. 2 & 3). Normally the major portion of the bulbus cordis is incorporated in the right ventricle to form the conus of the pulmonary artery. It atrophies to a large extent in the left ventricle, a failure to do this resulting in subaortic stenosis. The bulbus arteriosus, which arises from the bulbus cordis, sends down a growth which fuses with the anterior and upper margin of the interventricular septum and the posterior endocardial cushions thus closing the interventricular opening. A failure of this growth from the bulbus arteriosus results in an interventricular septal defect. It is possible that a failure to atrophy of the bulbus cordis may be associated with a failure in the downward growth from the bulbus arteriosus resulting in the combination of subaortic stenosis with interventricular septal defect.

There are two views regarding the pathogenesis of the lesion. One school believes that it is a developmental defect,

in which case it may be associated with other congenital abnormalities of the heart. The other possible cause of the condition is inflammatory i.e. a foetal endocarditis occurring in intrauterine life.

SURVEY OF LITERATURE

Smart in 1904 and Shennan in 1908 recorded the co-existence of aortic and subaortic stenosis, this condition being referred to as "double" aortic stenosis. In his Hunterian Lecture on "Malformations of the Heart" delivered before the Royal College of Physicians of London in 1909, Sir Arthur Keith stated that out of a total of 272 specimens of malformed hearts that he had seen there were 141 with defects in the development of bulbus cordis and only 4 of these were specimens of subaortic stenosis and 7 of aortic stenosis. At about the same time Theremin in St. Petersburg had noted 17 cases of subaortic stenosis in the malformed hearts that he had seen. Maude Abbott in an analysis of 1000 cases of various types of congenital hearts met with only 12 cases of subaortic stenosis and 11 cases of aortic stenosis. Of the 12 cases belonging to the former group only 1 had an associated patency of the interventricular septum. Left ventricular hypertrophy was present in 8 cases. Coarctation of the aorta was present in the cases of Pilod and Hugonot (1926) and Stewart and Bellet (1934). Sternberg recorded 2 cases (1930) one of whom was clinically diagnosed when 5 years old and had died at the age of 27 of a septic throat. The other patient was a man aged 77 who had died of an

obstructive type of jaundice. Sergeant, Launay and Imbert in 1932 reported a case of a male aged 27 who had died of subaortic stenosis complicated by subacute bacterial endocarditis. In 1939 Dormanns had recorded the case of a 16 year old active and athletic boy who died suddenly and was found on post-mortem examination to have subaortic stenosis. In a survey of the literature on this subject in 1942 Mason and Hunter had counted the total number of cases recorded till then as 31. Their case was a man aged 26 years who had developed subacute bacterial endocarditis as a result of the extraction of a tooth.

SUMMARY

A case of subaortic stenosis with an associated patency of interventricular septum diagnosed clinically is reported. It was possible to make the diagnosis by the presence of two separate murmurs and thrills. The diagnosis of subaortic

stenosis was based on the normal physical development, the normal pulse, blood pressure and second sound in the aortic area. The differentiation from aortic stenosis is of importance from the point of view of prognosis. Expectation of life in aortic stenosis is usually very short. Right sided enlargement of the heart which was seen radiologically and after an electrocardiogram confirmed the presence of interventricular septal defect.

The association of subaortic stenosis and patent interventricular septum is explained on embryological grounds as being due to a developmental anomaly of the bulbus cordis.

A survey of the literature confirms the rarity of the condition.

We thank Dr. C. Raghavachari, Superintendent, Stanley Hospital, Madras, for his permission to publish this case report.

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Slit Lamp Microscopy of the Posterior Segment of the Eye

By

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Slit-lamp microscopy of the posterior segment of the eye is indeed an indispensable and valuable diagnostic procedure in our practice. The superiority of this examination in the optic section over other kind of observation in diffuse light is so obvious. It has enabled us to understand better, certain pathological pictures and facilitated the differential diagnosis between ophthalmoscopically similar pictures. No doubt more details are seen and pathological changes are discovered earlier by this cheaper device which can no doubt, substitute a binocular ophthalmoscope, but it also provides much more information than the latter in the optic section. The history of this method of examination goes back to Koeppé who determined the principle of technique with a special contact glass for the elimination of the corneal refraction, a silver mirror for reducing the angle between the illumination and a binocular microscope. Valois and Lamoine then demonstrated that *instead of* a contact lens a concave lens of Minus 55 D may also be used being placed in front of the eye. Goldmann has improved on Koeppé's technique and Hraby on that of Lemoine and Valois. It is not the place here to describe the merits and demerits of the two methods, but I have found examination on Haag-Streit

slit lamp with present Hraby's lens easier, simpler and practical especially for our recently operated and sensitive cases. Zeiss slit lamp where angle between the microscope and illumination can be brought to zero even without the use of a reduction prism and the Hraby lens which works by a spring fixed in such a way that it requires no adjustment even in extreme lateral gaze. No doubt field and magnification are smaller by this method but it is definitely simpler. Strong illumination, maximum dilatation and fixation device are of great necessity for this examination.

BIO-MICROSCOPY OF THE VITREOUS

For examination of the Vitreous, the angle between the microscope and the illumination should be as obtuse as possible; but the diffused red light reflected from the fundus is of great hindrance especially in the study of Optic section. Bio-microscopically, it is not possible in the normal eye to identify the anterior limiting surface or hyaloid membrane of vitreous because of the strong reflection from the posterior lens capsule. It can be seen following intracapsular cataract extraction or in places where lens is partly luxated. Similarly, in the normal eye this is also in close contact with the

retina posteriorly, but it can be seen only when it is detached from the retina. Although physically these surfaces cannot be considered as true membranes, in altered state they appear to act as such (Cowan 1952). Retraction of the anterior limiting surface of the vitreous can occur but it is not as frequent as that of posterior surface. This may be due to the fact that anteriorly the strong attachment of the vitreous at its base (Ora-Serrata) and to the lens (Ligamentum Hyaloidae-Capsulare) makes displacement more difficult.

To those who employ this method as a routine, detachment of the posterior vitreous is a daily finding and is probably the commonest of all the changes seen in the vitreous, particularly in cases of high Myopia, chronic inflammation of the Uvea, Trauma, Haemorrhage, Retinal degeneration and detachment. In most cases its presence can be suspected by finding formed vitreous opacities, which are not to be confused with dot like cellular infiltrations and haemorrhages or with more delicate opaque thickenings attached to the fibres of an altered vitreous framework which are best seen in the Tyndall. These formed opacities occur in a variety of shapes, but pre-papillary annular opacity is quite commonly seen. Hruby rightly considers them to be actually associated with posteriorly detached limiting layer or attached to it from behind. (see Fig. 1)

The exact cause of vitreous detachment is not well known but it seems to be related to these factors :-

1. Alteration of the vitreous framework, fibrillary degeneration and shrinkage.
2. Presence of fundal changes.

The former is exemplified in Myopia and old age, the latter cases with chorio-retinal changes, Myopia, senility and retinitis pigmentosa etc. Chemically alteration of enzyme activity may be responsible. Morphologically the simple complete posterior detachment, and detachment with collapse are most important. (See Fig. 2 & 3). The funnel shaped detachment contrary to the former ideas is an unusual and rare form. One frequently encounters irregular shapes after operations and injuries which had led to the loss of vitreous. Very varied are indeed the shapes of partial detachment of vitreous. Amongst these a superior (Fig. 4), a partial posterior, a lateral and inferior are commonly observed.

With Hruby's lens the detached posterior limiting surface, if close to the retina appears as a fairly grey translucent membrane in the reddish light reflected from the fundus. In the axial region it may present the appearance of an incomplete loop hanging downwards and curving posteriorly for a distance (see Fig. 5). In the extreme retraction and collapse of vitreous substance the limiting membrane may be found behind the lens. The space behind the detached limiting membrane is usually dark, apparently containing vitreoid fluid without any collagenous frame-work.

Slit-lamp microscopy of the posterior segment of the eye is of great help in

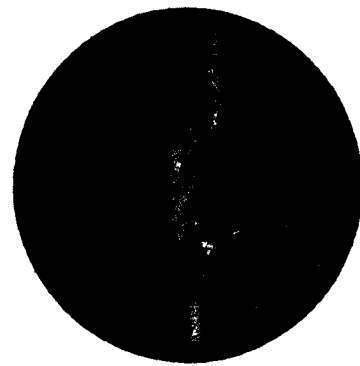


Fig. 1. Ring Shaped opacity in the posterior membrane of detached vitreous. (Pre-papillary ring.)

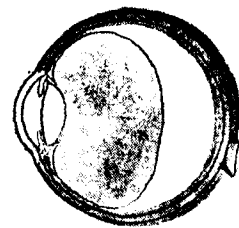


Fig. 2. Complete simple posterior detachment. (Diagramatic).

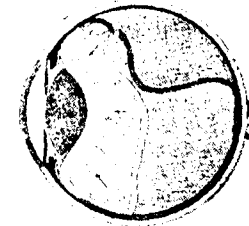


Fig. 7. Flap hole has formed due to adhesions of detached vitreous with the retina.

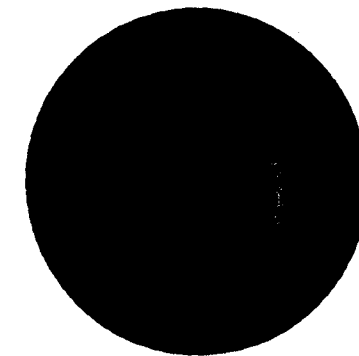


Fig. 10. Chorocdol sarcoma under slit lamp. (Hruby).

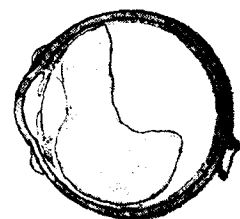


Fig. 3. Complete posterior detachment collapse. (Diagramatic).

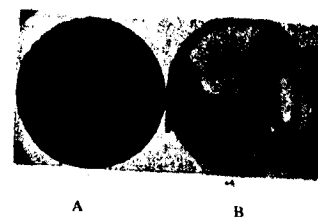


Fig. 4. Superior detachment of vitreous (a) under slit lamp. (b) Diagramatic (Hruby).



Fig. 8. Flap hole with adhesions of the posterior phase of vitreous with the flap of the hole.

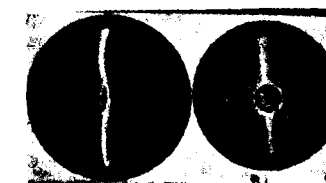


Fig. 11 (a) Macular cyst (b) Macular hole under slit lamp.

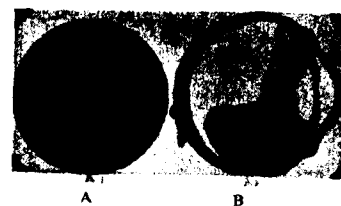


Fig. 5. Detachment with collapse (a) under slit lamp. (b) Diagramatic (Hruby).

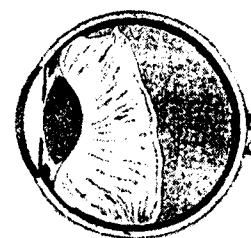


Fig. 6. Detachment of vitreous which is also retracting. Note its adhesions with the retina which will form into a flap hole.

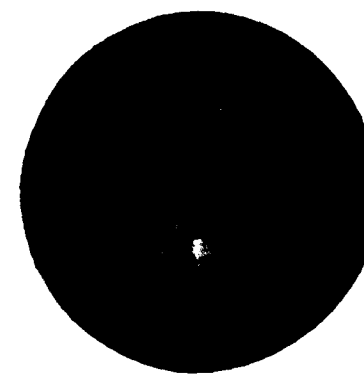


Fig. 9. Flap hole with free flap suspended in vitreous. Note the connections of vitreous with this free flap.



Fig. 12 Central serous Retinopathy. (a) Cupid's Bow.

retinal detachment. The correctness of the precept of Leber that primary tears with retinal flaps and detached free flaps of the retina (see Fig. 6 & 7) are caused by the traction of the detached vitreous, presented by Gonin and elaborated by Lindner, is exemplified daily by examination of living individuals with the Slitlamp (Fig. 8). We can also see the connections of the detached vitreous with a torn flap or free lip of the retinal tear in the living eye (Fig. 9). The most dangerous moment is undoubtedly when the vitreous body has not yet reached the stage of collapse, but starts pulling still in contact with the retina and transmitting to the retina the full impact of its mass with every movement of the eye-ball.

For pre-operative examination of cases of retinal detachment this has become completely indispensable. It not only allows us to detect small ill-defined holes but also helps in planning out an operation particularly Scleral Resection as depth of detached vitreous determines the extent of resection. Moreover the site of detachment of vitreous gives an indication of the situation of the retinal tear.

In the differential diagnosis of retinal detachment an Optic Section is of great value. The recognition of choroidal tumours (see Fig. 10) has been rendered more certain by slit-lamp examination. This is particularly applicable to the tumours at the back of eye which are relatively inaccessible to trans-illumination. In retinitis proliferans there appear vascularised membranes which closely resemble

retinal detachment and which are easy to recognise in a section than in diffuse light of the ophthalmoscope. Larger isolated retinal cysts which were formerly considered extremely rare are often recognised with the aid of the slitlamp.

This has also permitted us diagnosis of vitreous haemorrhage to be more exact topographically, as one can differentiate between the prognostically more favourable subvitreal and the type of intra-vitreous haemorrhage in which the blood has penetrated the framework tissue of the vitreous. The detached posterior membrane forms a protecting barrier against progressive haemorrhage, so that blood frequently spreads along the limiting layer or gravitates as in hyphaema towards the inferior fixation line of the vitreous.

In eyes with inflammatory changes in their posterior part either Uveitis or Neuritis one often notices a Tyndall phenomenon in the posterior vitreous space under slit-lamp examination.

SLIT-LAMP EXAMINATION OF FUNDUS

It is the best method of examining the posterior part of the eye, specially the macula. Normally one sees very clearly the configuration of the papilla, the nerve fibres of the retina, the depression of the fovea and the thickness of the retina in the cross section. The thickest part of the retina is situated normally on the temporal side of the papilla and around the macula.

The importance of the study of macular lesions by means of optic section for the purposes of identification and

differential diagnosis can hardly be over-emphasised. This is specially so in differentiating between early macular lesions and retrobulbar neuritis. With optic section it may be possible to distinguish between a coloboma and a choroidal scar. In senile macular degeneration, delicate pigment alteration can be seen beneath the retina which itself may be still unaffected. With further development extension of pigment clumps in the retina will occur. Differentiation between macular cyst and macular hole is only possible by this method (see Fig. 11.)

Central serous retinopathy gives a very characteristic picture of Cupid's bow, with an umbilicated depression on the fovea (see Fig. 12). Cystoid oedema of the macula which is frequent in cases of Uveitis, Vascular disturbances of the posterior pole of the retina and choroid (e.g. in thrombosis of central vein, arterio-sclerotic changes of choroidal vessels at the macula) in the disciform degeneration of the macula and in cases with old detachment of the retina can be well seen by this method.

With the help of the bio-microscopy of the fundus it is very easy to distinguish between little spots of capillarosis

within the thickness of the retina (sign of vascular disturbance of retina) from Drusen of the choroid in its optic section. It is possible to differentiate and localise retinal and choroidal haemorrhages. In diabetes specially in the vicinity of the fovea one can frequently identify the small red points as capillary aneurysms rather than actual haemorrhages. Thinning of the retina with migration of pigment into it as well as gliosis of the disc can be recognised in cases of retinitis pigmentosa. Optic section readily discloses changes in level and colour variations of papilla. Hyaline bodies or Drusen situated deeper down can be easily distinguished. Optic section easily distinguishes the level changes in papilloedema. Filling of the cup with fluid and raising of the internal limiting membrane or central glial meniscus are characteristic findings.

From the above description it is quite evident that it is indeed a very valuable method for our diagnosis. It provides valuable information where Ophthalmoscopy fails but fundus should never be examined by slit-lamp without an accurate preliminary ophthalmoscopy because it is a combination with other forms that useful conclusions emerge.

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“Injured Elbow”

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(Continued from July '58 Issue)

Type I Fracture : This is a marginal section fracture involving less than 1/3 of the articular circumference and without displacement. Treatment is simple and no difficult problems are involved. The elbow is immobilised in 90 flexion for two weeks and if by then the traumatic hemarthrosis had been absorbed, active exercises are recommended. Most of the patients regain full function of the joint and restored to normal work in about 5 weeks.

Type II Fractures : These are marginal section fractures with displacement of the fragment. If the fracture involves more than 1/4 of the circumference of the articular head or there is gross displacement of the fragment excision of the head of radius is indicated. On the other hand, if less than 1/4 of the articular circumference is involved, and displacement slight, treatment by simple immobilisation must be considered. However, it is these so-called borderline cases that give the maximum difficulty in treatment. The final range of movement is not as good as expected and they take as long as 11-12 weeks sometimes, before they are restored to work. It appears, therefore, that unless the fracture is in perfect position, a more certain and quicker return to normal

can be secured by early resection of the head, than can be expected by conservative methods.

Type III Fractures :—These are comminuted fractures involving the whole head of the radius. Conservative treatment has no place in their management, as it not only limits the range of motion at the elbow and superior radio-ulnar movements but may lead to degenerative arthritis at a later date. The head of the radius must be resected as early as possible in these cases.

Obliquity of the fracture line means that at its base more than 1/3 of the articular circumference of the radial head is involved. Cases, therefore, in which the allowable 1/4 of the articular circumference is damaged but in which there is tilting of the fractured portion, so as to give an oblique fracture line, will therefore have severe limitation of movements, if treated conservatively. Watson Jones advocates resection of the head for all types of fractures on the ground that head is actually more severely damaged than what is apparent in the x-ray and that fracture of the radial head is a part of widespread injury to the joint. So, the axiom is with regard to treatment of fractures of head of radius must be “If in doubt, resect”.

Technique of Operation :-Strict asepsis should be centred accurately over the radial head, care being taken not to extend the dissection down to endanger the posterior interosseous nerve. The common extensor tendon and the underlying capsule should be divided without dissection into many planes, so that the postoperative hematoma in which ossification may occur will be minimal. When the radial head is exposed the periosteum should be divided close to the articular margin and reflected down, the forearm being turned into full pronation and full supination so that a complete cuff is separated. The bone is then cut with a sharp osteotome through the neck of the radius, immediately above the orbicular ligament. The cuff of periosteum should be replaced over the raw stump of the radial neck. In this way, ossification of the post operative hematoma, with the formation of a mass of bone which may block movement is prevented. After operation, the limb should be rested in a posterior plaster slab for about 2 weeks. Movements should be regained by active exercise alone. Many months may lapse before the final range of *extension movement is regained*. Recovery of elbow movements must be expected at the end of about 8 weeks. What happens to the rotation of the forearm if the head of the radius is removed? A good deal depends on how when an operation takes place. If the operation is properly done and the orbicular ligament reconstructed and if the elbow is in other forearm freedom from pain and almost normal power and stability

of the elbow. If the operation is improperly done and if the tissues are greatly traumatised, little or no benefit may be expected. The same is true in those cases in which operation is postponed till marked traumatic arthritis and fibrosis of surrounding tissues have developed.

Loss of range of extension, following operation was once thought to be due to the damage sustained by the capitulum of the humerus. But now it is known that as a result of valgus, strain at the moment of injury, the cartilages of the trochlea of the humerus and trochlear notch of ulna suffer damages, similar to that sustained by capitulum and radial head. Thus the cartilage of both the medial and lateral compartments of the joint suffer damage. This is responsible for restriction of extension.

Excision of the head of the radius may be followed by local formation of new bone and proximal displacement of the radial shaft. The advent of acrylic resin has made the substitution of an artificial head a practical proposition. Judet and Judet (1950) have shown that this material is unaltered by long stay in the body, that it is not attacked by organic acids, and that little osteoporosis occurs at the site of contact of the bone with resin. The acrylic head is inserted after excision of the fractured head. This procedure has a small but useful place in treatment of fractures of the head of the radius requiring excision. The ideal case would be that in which the radial head is shattered but the capitulum is not seriously damaged.

Fractures of the Head of the Radius in Children :- A fall on the outstretched hand which impacts the head of the radius against the capitulum causes fracture of the head radius in adults and of displacements of upper radial epiphysis in children. The displaced fragment includes the epiphysis, epiphyseal line and a triangular fragment from the diaphysis. Sometimes, the fracture line is lower and is then called green-stick fracture of the neck of the radius.

That the injury is caused by valgus strain, is suggested by the rupture of the medial ligament or avulsion of the medial epicondyle often associated with it.

Displacement :-1. There may be slight lateral displacement only without angulation and with the articular surfaces still parallel. (2) There may be outward angulation. (3) Occasionally backward angulation may be present.

The direction of tilting of the displaced head relative to the shaft of the radius varies with the rotational position of the radius at the time of the injury. Thus, if the forearm is supinated at the moment of impact, the displacement of the epiphysis is outward, with outward tilting and this displacement is seen in the usual A.P. view taken in supination. But if the forearm is in mid-position, the adjacent posterior quadrant of the radial head is subjected to the greatest violence and when the forearm is returned to a position of full supination, the head is tilted backwards in relation to the radial shaft.

Treatment :-Slight lateral displacement without angulation and with the articular surfaces still parallel is relatively unimportant. It does not interfere with movement of the joint, and gradual remodelling of the bone will mark even radiographic evidence of displacement. But if the head of the radius is tilted, it presents an angular margin for articulation with the capitulum, instead of the normal smooth and slightly concave surface. The generative powers of growing are not equal to the correction of such an angulation and inequalities of the articular surfaces cause repeated traumatism of the joint with permanent limitation of extension. After correction of the displacement recovery is usually complete within 3-4 months, whereas if the angulation is not corrected, there may still be considerable limitation of extension movement after several years.

Hence those with displacement only and no angulation must be treated in a simple posterior plaster slab for about 2-3 weeks and active movements when commenced.

When there is angulation, manipulative reduction attempted under general anaesthesia, the elbow is extended and forearm adducted to open the outside of the joint. The forearm is rotated so that the most prominent part of the displaced head is disposed laterally. This information is obtained from the study of A.P. views centred on the head of the radius and taken in various positions of rotation and the limb is laid in that degree of rotation at which the head becomes prominent laterally.

Reduction is then achieved by pressing firmly over the front outer aspect of the epiphysis. After connection the joint should be immobilised in plaster at right angle flexion and mid-rotation.

R. F. Patterson (1934) describes a technique for reduction of complete fractures of the neck in children. The annular ligament must be intact. In order to reduce such a fracture, a force must be applied which will separate the fragment longitudinally but must also force the upper end of the ulna outward to meet the fixed proximal portion of the head. An assistant grasps the arm and fixes the humerus placing one hand against the inner condyle to act as a fulcrum for leverage. Another assistant uses traction on the arm and forces the forearm inward until the carrying angle is obliterated. The forearm is supinated to relax the supinator. The position is checked by x-rays and if the fracture is reduced, a cast is applied with the arm in complete extension. The cast is worn for 2 weeks after which active movements are started. The elasticity of the ligaments and other joint structures in children enables one to revolve the forearm inward on a vertical axis passing through innercondyle. This method is not applicable to adults owing to inelasticity of the ligaments and other soft tissues.

Operative reduction is indicated in those cases of outward tilting, when manipulation has failed and in all cases of backward angulation. In the later cases, the patient falls first on the hand sustaining a temporary backward

dislocation or subluxation of the elbow joint. The resulting upward violence on the flexed elbow separates the capital epiphysis of the radius by impact against the inferior aspect of the capitulum. Manipulation cannot reduce this and operation is the only choice.

Open reduction :- Through a short incision, the head of the radius is exposed. A sterile pad of gauze is placed over the head of the bone and with thumb pressure it is pushed upwards and backwards. The injury is of the green-stick type and the periosteum is not ruptured, so the head can be easily moulded into position. The head is held in position by placing one or two sutures of catgut in the periosteum of the neck and suturing the annular ligament around it. In this operation, it is important that the elbow and forearm be placed in a position in which the head is fairly stable on the neck (i. e.) 45 flexion, in midposition between pronation and supination. After operation, a plaster cast should be applied from below the shoulder to the metacarpal heads, and immobilisation is continued for 3 weeks. Movements are then regained, by active exercise.

ESSEX LOPRESTE FRACTURE

Fractures of the head of the radius usually occur from fall on the outstretched hand which force the elbow into the valgus position, and impact the radial head against the capitulum, but sometimes the upper end of the radius is fractured by longitudinal compression of the forearm. The radius is driven forcibly against the capitulum and

fractured at its upper end, while at the same time the ulna is dislocated at its lower end. The true nature may sometimes be dislocated in the radiographs of the elbow alone which show impaction of the neck of the radius into the middle of the comminuted fragments of the head with shortening. But it can be better proved by taking radiographs of the inferior radio-ulnar joint. Indeed, in every recent comminuted fracture of the head of the radius radiographs should be taken of the inferior radio ulnar joint in order to know whether the radial head has been comminuted from valgus, strain of the elbow with rupture of the medial collateral ligament or from longitudinal compressing the forearm with rupture of the inferior radio-ulnar ligaments.

In the management of these cases, excision of the head of the radius must be delayed long enough for the tears of the interosseous membrane and inferior radio-ulnar ligaments to heal. If the head is resected at the time of injury, the shaft rides up and displacement at

the inferior radio-ulnar joint is increased. Excision of the head may be followed replacement with a plastic prosthesis.

CONCLUSION

1. Fractures of the head of the radius involving less than 1/4 of the articular circumference and with minimal displacement can be treated conservatively.

2. Fractures involving more than 1/4 of the articular circumference and with gross displacement and all the comminuted fractures are treated by resection. The dictum must be, if in doubt, resect.

3. Fractures of the head of the radius caused by longitudinal compression should be treated by delayed resection.

4. Fracture separation of the epiphysis of the radial head must be treated by closed reduction. If this fails, it should be treated by open reduction.

5. Head of the radius, should never be resected in children, as it interferes with growth and also causes dislocation of the inferior radio-ulnar joint.

Fracture of Capitulum

There were 3 cases of fractures of capitulum all of them adults. The injury was of the nature of a fall on outstretched hand in two cases and direct hit in the other. All three were treated by excision of the fragment, 2 cases followed up-to-date show excellent function of the limb and very good range of motion.

FRACTURE OF THE CAPITULUM

This fracture is caused by a fall on the outstretched hand. The radius is drawn upwards and forwards and delivers a shearing blow to the front of the capitulum. The bone as well as cartilage may be injured. Any size of

fragment may be broken off but 3 degrees of injury are commonly recognised.

1. Bruising of the articular cartilage of the capitulum.
2. Chip fracture of the capitulum.
3. Fracture of half the capitulum and part of the trochlea.

Diagnosis :- Unless the fragment is large or complicated by other injuries, the immediate symptoms are not severe and consist of pain and effusion into the joint with more or less limitation of motion, which is characteristic in that it is free to a certain point and then suddenly blocked. The diagnosis is made by the absence of the signs of any other fracture and by x-ray.

Bruising of the articular cartilage :- This is responsible for the limitation of extension movement that is sometime unavoidable in fractures of the head of the radius. The damage to the articular cartilage may cause localised muscular neurosis, and lead to osteo-chondritis dissecans.

Chip fracture of the Capitulum :- Here the detached fragment of cartilage may include a thin flake of bone. The defect in the outline of the capitulum may be too small and too shallow to be seen in x-rays but the source of the loss of fragment is proved by its typical elliptical moon shape. There is no other articular surface in the elbow with a similar contour. Since the fragment is completely detached and avascular, it should be removed through a short incision on the outer side of the joint.

Fracture of Half the Capitulum :- The front half of the capitulum may be broken off by a vertical fracture line in a sagittal plane, coinciding with the front of the shaft of the humerus. The fragment is pushed upwards but seldom tilted or rotated and its fractured surface usually remains in close contact with the humerus, immediately above the

bed from which it has been broken. For this reason, the displacement may often be overlooked and serious restriction of elbow movement then occurs.

Watson Jones advocates manipulative reduction of the fracture and immobilisation in extension. If this fails, open reduction is resorted to and if necessary, fixation of the fragment in position by a few catgut sutures of the periosteum. He is totally against resection of the fragment, on the plea that the joint becomes stiff due to the adherence of the capsule to the raw area. But our own experience runs contrary to this. Routine resections have been done for all cases of fracture capitulum with complete recovery of movements. Closed reduction is difficult to achieve and even more so to maintain in position. We hold that open reduction also is not advisable, as attempts to do so result in further damages to the soft parts. Besides there is always the danger of avascular necrosis of the loose fragment. All these considerations have convinced us that resection of the fragment is the method of choice in the treatment of fractures of capitulum.

FRACTURE OF OLECRONON

There were 5 cases of fracture of olecronon. All of them were adults.

There was history of direct injury in 2 cases and fall on semiflexed elbow in the other two. Nature of injury was not known in one case.

3 cases did not show any displacement. In one there was wide separation of fragments. The last case was 1 year old and had myositis ossificans and

chronic osteomyelitis of the upper end of ulna and lower end of humerus. Sham reduction was done for this case, drainage of wound done once and penicillin and streptomycin given. Ultimate fate of the patient could not be traced further.

Two cases were treated by open reduction and screw fixation and one was treated with simple immobilisation in P.O.P. One case that was treated with screw fixation was followed up, and movements at the elbow were normal and painless.

FRACTURE OF THE OLECRONON

Occurrence and Mechanism :- Despite the fact that it is a very heavy, strong process of bone the olecronon is rather frequently fractured in adults. This is partly due to its exposed position on the point of the elbow, when it receives most of the direct injuries to the elbow and partly by the tremendous cross strain which is put on it in falls on the flexed and supinated forearm. The process is rarely broken in children because in early life it is short and thick and relatively much stronger than the lower end of the humerus.

The most common mechanism is a fall on the semiflexed and supinated forearm. As the hand strikes the ground, the muscles are tensed and the powerful triceps snaps the olecronon over the lower end of the humerus, which acts as a fulcrum. The next most frequent cause is direct trauma as in falls or blows on the point of the elbow. More rarely the olecronon may

be fractured by hyperextension injuries, such as usually result in dislocation of the elbow in adults or supra-condylar fractures in children. Very rarely it is broken by muscular violence as in throwing.

Pathology :- The usual fracture is a transverse or slightly oblique break near the base of the olecronon. In the oblique fractures, the fracture line tends to slope down and back and emerge on the posterior border of the ulna. In other instances a small piece of bone is pulled off the proximal end of the olecronon and the injury resembles a sprain fracture. The fractures from direct violence are often compound and may be comminuted.

The displacement is largely due to the pull of the triceps muscle which tends to pull the separated fragment upward but it is resisted by the strong fibrous covering on the olecronon. This is formed by a blending of the fibres of the lateral ligaments and capsule of the elbow and of some of the fibres of the biceps tendon all of which blend with the periosteum. If this fibrous sheath is not torn by the fracturing force, there is little or no tendency to displacement, even in the presence of considerable comminution and as a matter of fact, a considerable percentage of olecronon fractures show little or no displacement.

In the fibrous covering of the olecronon is torn, the upper fragment is forced upward by the fracturing force and drawn upward by the triceps muscle which is inserted into it. However,

in a fresh fracture the displacement is rarely more than half an inch. The fractures of the olecranon in which there is wide separation of the fragments are usually old fractures with extensive tearing of the fibrous sheath, in which the unopposed triceps has gradually contracted and drawn the separated fragment upward. The amount of separation of the fragments is increased by flexion and decreased by extension of the elbow.

In addition to the displacement of the upper fragment, there may be more or less anterior displacement of the bones of the forearm on the humerus. In such cases the upper end of the radius moves with the upper end of the ulna and there is anterior subluxation or dislocation of both bones at the elbow which can be easily reduced but tends to recur when pressure is released.

Since these fractures are practically all articular, there is more or less effusion into the elbow. In simple fractures of the olecranon, there is little damage to the soft parts.

Diagnosis :— The elbow is moderately swollen, especially over its posterior surface and the patient usually supports the forearm in a position of slight flexion. In most cases of complete fracture, there is a characteristic soft, fluctuant tender swelling over the olecranon from effusion into the Bursa and surrounding tissues. Palpation reveals tenderness over the line of fracture and crepitation may be felt.

Active extension is abolished in fractures with separation of the fragments

and is greatly weakened and accompanied by pain in fractures without displacement. This loss of active extension of the elbow with pain, tenderness and swelling over the olecranon are sufficient for a diagnosis.

Treatment :— The two aims of treatment, should be to restore the power of active extension and to retain the range of movement, of the joint.

In the treatment of these fractures, even the slightest amount of separation of the fragments is not tolerated, as the fracture then heals with fibrous repair resulting in lengthening of the triceps tendon and a consequent loss of active extension at the elbow.

Fractures without displacement :— Transverse, oblique, or comminuted fractures without displacement are best treated by simple immobilisation of the elbow in a position of 90 flexion but if there is fear of displacement of the fragments, there should be no hesitation to immobilise the elbow in complete extension. The plaster should extend from the axilla to the heads of the metacarpal bones. The immobilisation is continued for 4-6 weeks, depending upon the severity of the fractures. At the end of this time, the arm can be carried in a triangular sling for 2-3 weeks; restoration of function is hastened by graded exercises.

Fractures with displacement :— Even if there is slight displacement reduction must be done. First manipulative reduction attempted and if this fails open reduction resorted to.

(To be Continued)

Spontaneous Pneumothorax

By

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(Continued from July '58 Issue)

The sputum is negative for tubercle bacilli. Blood examination in most of the cases will reveal the presence of Polymorpho nuclear increase. Whereas in cases of spontaneous pneumothorax, the sputum may contain T. B., the blood does not show any leucocytosis, the breath sounds are weak, or absent except in very rare cases in children when they are bronchial, and if dullness is present, it is due to fluid, and it will have a straight upper border in the erect posture, in addition to the presence of fluid splash, and shifting dullness.

Pulmonary infraction : The following points will help us in differential diagnosis. 1. There will be evidence of rheumatic endocarditis, with the changes in the valves. 2. The onset is acute with very severe pain. 3. There may be blood stained sputum. 4. Local signs of dry pleural rub. 5. High temperature. 6. The sputum will be negative for T.B. 7. There will not be great difficulty in breathing. 8. No hyperresonance in the chest. 9. Breath sounds are not diminished to any great extent over a large area of the chest. 10. No evidence of free fluid with air giving fluid splash, or shifting dullness.

Status asthmaticus : 1. History of being an asthmatic. 2. No evidence of collapse. 3. Presence of emphysema on

both sides giving some amount of hyperresonance, but the important thing to remember is that emphysema is bilateral and hence the hyperresonance is also bilateral. 4. Weak breath sounds are also present on both sides. 5. One important fact in the respiratory note that will be of great value is diagnosis, is the fact that in asthma, the expiration is prolonged, and the succeeding inspiration comes almost immediately without any interval which is not normal. 6. The immediate effect of a small dose of adrenaline.

Cardiac Asthma : 1. This often occurs at night. 2. There is evidence of cardiac derangement such as high blood pressure, atheroma. 3. The liver may be enlarged. 4. No evidence of emphysema or of weak breath sounds. 5. Adrenaline may make the condition worse by raising the blood pressure. 6. Morphia and amylophyline given intravenously very slowly will relieve the spasm in many cases.

Uraemia : The so-called renal asthma is nothing more than a manifestation of the toxic condition of the respiratory tract. Just like cardiac asthma, renal asthma has a knack of sudden onset, mostly in the dead of night, to the annoyance of the doctors. The points that will help us in the diagnosis are, 1. Sudden onset in a person, who has had some renal derangement, like ch. nephritis,

etc. 2. High blood pressure or atheroma of the vessels. 3. Increased percentage of urea in the blood. 4. Urine also may show presence of albumin with or without casts. Examination of the chest does not reveal any signs of disease except a few rales at both the bases. Adrenaline has no effect on the state of the patient, it may make it in many cases worse.

Cardiac failure: When there is congestive cardiac failure, the respiratory tract is also involved, and the breathing becomes difficult and more frequent. The points that will help in diagnosis are (i) Enlarged and Tender Liver, (ii) Presence of disfunction of the heart, either myocardial or valvular, (iii) Dullness over both the bases of lungs, with very fine rales, which are present both during inspiration and expiration, with no signs of consolidation, (iv) Rapid pulse, (v) Free fluid in the dependent parts, like swelling of feet and legs etc., (vi) Albumin may or may not be present, depending on whether the failure is primary or secondary to renal disease. Here the breathlessness is due to congestion and consequent poor oxygenation of the blood. (vi) Examination of the lungs.

Pleural Effusion: Massive pleural effusions can produce all the symptoms present in spontaneous pneumothorax cases at first sight. In both we have marked breathlessness, in both there is diminished movement of the chest on the affected side, in both we have some sort of pain, the pain is mostly due to the pressure on the neighbouring organs, the pain and breathlessness are more

marked if the effusion is on the right side, then the mediastinum is pushed to the left.

The points that will help us are, in effusion there is stony dullness, whereas in case of spontaneous pneumothorax, there is hyperresonance, (2) There is shifting dullness in spontaneous pneumothorax if fluid is present, which is usually not elicited in effusion, (3). In effusion, the area of the lung above the fluid shows harsh breathing, which is not present in the case of spontaneous. (4) Exploratory puncture by a needle in one we get fluid, and in the other we get air. (5) The area of dullness if demarcated, will reveal the Ellis line in effusion. It must be remembered that in some cases, of spontaneous pneumothorax, the patient may come to us with massive hydro or pyopneumothorax, and if the quantity of air is small, it may be difficult to elicit the shifting dullness or the fluid splash. This is more common to occur in cases of malignant conditions of the lungs and bronchi. One point that will make the doctor to suspect the causative condition of the spontaneous pneumothorax to be malignant in nature, is the fact, that even if large quantities of fluid are removed, the pleural space becomes rapidly filled up so much so that in 24 hours it is practically in the same state as before aspiration. The nature of the fluid will also reveal the nature of the primary condition. Aspiration will reveal the presence of pus with or without T. B., whereas in cases of malignant growth the fluid may be blood stained and cancer cells are present on examination. Bilateral effusions are

more liable to produce breathlessness than unilateral; if unilateral the breathlessness becomes more marked if the effusion is upto the second rib in front. It is also marked when inflammatory effusion occurs in persons suffering from heart diseases.

Hydrothorax and Haemothorax: Both are manifestations of non-inflammatory factors. In hydrothorax, fluid occurs in both the pleural sacs, just as it occurs in peritonium, in cases of heart failure. The points to remember are 1. The fluid when withdrawn is non-inflammatory in cytology. 2. Fluid is also present in some other serious sacs.

Haemothorax: This condition is often due either to injury or due to certain blood diseases. Points that will help us are, evidence of signs of blood disease or of some body injury, like an accident etc., when explored, the fluid will be found to be blood. No shifting dullness is present.

Hysteria: It should not be forgotten that in some cases of young girls, mere fright might bring about such breathlessness which is rather alarming to the people nearby. The diagnosis depends on the absence of any abnormal signs in the lungs and the presence of highly strung nerves. In these cases the doctor has to take the neurotic condition of the patients into consideration and has to spend more time with such patients and prescribe some plebisio, rather than popo such conditions. If the latter attitude is taken by the medical practitioner, it may be his last visit to the patient, and possibly to that house, if the patient

happens to be the lady of that house. Though from what has been said, it looks that a case of spontaneous pneumothorax can be diagnosed fairly easily, yet certain conditions exist which makes the diagnosis rather difficult. There are certain cases of localised types of spontaneous pneumothorax, which give practically the same picture as a case of Lobarpneumonia, high temperature, rapid breathing high toximia, and restlessness, the diagnosis will mostly depend on an x-ray picture. These are cases where the puncture has taken place somewhere in the substance of the lung more centrally and is warded off by fibrous adhesions. These occur in some chronic cases. Clinically it can to an extent be diagnosed by the absence of breath sounds in a limited area, or weak breath sounds in localised area, where as in cases of lobar pneumonia one would expect tubular breath sounds. Luckily the prognosis in such cases is not bad, as the lesion is localised and therefore pressure symptoms are usually not present though the danger of formation of fluid is still there.

Excepting this unusual condition, the other cases of spontaneous pneumothorax can easily be diagnosed if proper and systematic examination of the patient is made, which does not take more than a few minutes. The time spent on the examination is well spent as it saves a lot of worry and waste of precious time for the patient. Every attempt should be made to make a diagnosis even when x-ray is not available. If available it would be advantageous to get one so that the diagnosis may be confirmed, at the same

time it helps to get a correct assessment of the exact condition of the rest of the lung fields, which will be of immense value in prescribing the line of treatment for the ultimate cause.

TREATMENT

Treatment can be divided into two stages: 1. The immediate treatment. 2. Subsequent treatment.

Immediate treatment: It can be taken under two groups: general management and special measures.

General Management: The patient should have absolute rest in bed in a posture that it is comfortable to the patient, very frequently propped up in bed with a back rest behind, or with pillows in front as in cases of cardiac insufficiency will be most comfortable to very many patients.

Keep up the general health of the patients by combating collapse, stimulants by mouth, hot water bottles to the legs and feet, and small quantities of nutrient food, at frequent intervals. If he is perspiring it should be wiped and general morale kept up by doctor attending on the patient as quickly as he can giving encouragement by words. If there is distension of the abdomen an enema should be given with as little disturbance as possible to the patient.

Specific Measures: If the patient's life is to be saved, immediate measures should be started to relieve the increased intrapleural pressure. There are various ways in which this can be done. 1. If an A.P. apparatus is available, this is most convenient. Arrange the apparatus in the reverse way to the one adopted for

induction of pneumothorax (the graduated bottle should be full and the ungraduated bottle should be almost empty), clip all the connections to the two bottles and leave the A. P. needle communicating with the monometer only. After the doctor has selected the spot, apply Tinct. Iodine and introduce the A.P. needle. The spot to be chosen for introduction of the needle has to be done with care. It is best to choose an area where there is the greatest amount of resonance, and as high as possible, so that if any fluid is present, it will not interfere with the withdrawing of air. In many cases where air is only present, this procedure alone will relieve the distress in breathing. As soon as the needle is introduced into the pleural cavity, please read the pressure on the monometer, and remove enough air to bring the pressure to just + 2 or + 4. Please do not remove the air till the pressure is highly negative, if this is done there is every danger of the collapsed lung re-expanding and the puncture reopening, thus allowing more air to come into the pleural space. After the required quantity is removed, please do not remove the needle but wait for at least 10 or 15 minutes with all the connections to the bottles and monometer clipped. At the end of this interval, again read the pressure on the monometer, and see if it is same as before or increased and has become more positive than before.

If the pleural pressure is more positive than before, the conclusion to be drawn is that fresh air has got into the pleural space during the time of waiting indicating that the leak has not closed, and if the

positive pleural pressure is much higher almost as high as before deflation, the conclusion is that the condition is one of valvular type of puncture, if on the other hand even after removing 1000 cc. of air, there is no change in the reading of the monometer, the conclusion is that the case is one of open variety, where there is a Pleuro Pulmonary fistula.

Continuous deflation: If it is found that during the waiting time, the breathlessness has returned, continuous deflation will have to be instituted. This is done thus: connect a long rubber tubing to the needle that has been introduced into the pleural space, with a clip attached, and the end of the rubber tubing dipping into a bottle of water, the needle is to be fixed to the chest wall with some plaster. Instruct the patient to release the clip whenever he feels breathless, and clip it when he feels comfortable. This arrangement is to be kept up till he is able to breathe well without any difficulty with the clip closed for three or four days. That means that the puncture has been sealed and there is no more escape of air into the pleural space. The puncture can sometimes close due to the deposit of fibrin which in time becomes fibrosed, provided the puncture does not reopen.

When the case is seen after some days, by which time effusion has formed, this type of deflation may be hampered, due to fluid coming in. In such cases, aspiration of the fluid, also should be done. As a general rule it can be said that if the difficulty of breathing is not relieved by mere deflation of air alone; the fluid that is present however

small should be removed. In cases of spontaneous pneumothorax effusion occurs very quickly—as early as 24 hours.

Aspiration of fluid: In cases where fluid is present for a long time, rapid removal of the fluid may cause collapse of the patient in addition to severe pain. The mediastinum in such cases is displaced and during the process of removal of fluid the mediastinum returns to its original position causing very severe pain and collapse. The remedy for this condition is to introduce some quantity of air to replace the fluid that has been aspirated.

Single needle method: Here the needle has to be introduced in a dull area and the fluid aspirated slowly either by a Potain's aspirator or by any other method of producing a vacuum. The aspiration of the fluid has to be stopped: 1. When the patient complains of pain. 2. When the patient complains of difficulty of breathing. 3. When the patient complains of incessant cough. 4. When the fluid is blood stained. Introduction of air has to be done through the same needle after clipping the connections with the aspirator.

Double Needle Method: Here the needle is introduced at the upper part containing air and the second needle is introduced at the dullest area, where there is fluid. The lower needle is attached to a Porain's aspirator and by creating a vacuum, fluid is withdrawn, and when he complains of any pain, air is introduced through the upper needle. In this method, without any inconvenience to the patient the whole lot of the fluid contained in the pleural cavity can safely be aspirated.

Deflation of air and aspiration of fluid should be done as quickly as symptoms demand and when condition of the patient has not improved in three or four deflations and aspirations it is safest to introduce continuous deflation.

Unfortunately in a large number of cases effusion in spontaneous pneumothorax becomes purulent in the course of a few days. Hence the condition gets transformed into one of Pyo-Pneumothorax, consequently making the prognosis worse.

Examination of blood and of fluid withdrawn from a Pleural Cavity will help in determining whether the fluid has turned purulent. In a large number of cases, the presence of purulent effusion in the pleural cavity is accompanied by rise in temperature. But this is not always present. It may be that when the patient is first seen by the doctor, the whole of pleural cavity may be full of pus and very little air at the top. In such conditions, the actual diagnosis of spontaneous pneumothorax may be difficult at first sight, though X-ray is useful in the correct diagnosis. It must be remembered that whenever Pyo-Pneumothorax is present, not only should we exclude the presence of tuberculosis but at the same time should exclude the presence of other lung conditions which produce such complications viz :

1. Malignant Pneumothorax.
2. Abscess lung
3. Gangerene etc.,

When a patient is seen with Pyo-Pneumothorax, the first thing to do

is to relieve the distress in breathing. Pain and toxic symptoms should be attended to after the distress in breathing is removed. The following methods are usually adopted :

- I. Aspiration of pus from Pleural Cavity thus encouraging the lung to re-expand and fillup Pleural space.

This does not occur frequently because, when the pus has stayed in the pleural cavity for some time, fibrin becomes deposited on the visceral pleural surface thus hindering the re-expansion of the lung which is essential if the pleural cavity is to be occupied. In such cases, mere aspiration of the fluid content though may relieve the urgent distressing symptoms, does not encourage the re-expansion of the lung and obliteration of the pleural space. Hence if the pyo-pneumothorax is of a long standing duration in addition to the frequent aspirations of the pus, pleural lavage should also be undertaken with each aspiration.

For this purpose various types of fluids are used. Some of them are Tincture Iodine drawn to a pint, Dakain's Fluid etc. The method adopted is as follows :

- I Aspiration could be done in the ordinary way by the Potain aspiration and when sufficient quantity of pus is withdrawn, the pleural cavity can be filled with the lavage fluid with a 100-200 C. C. Syringe and when about 10 to 12 oz. have been introduced into pleural cavity the fluid is again aspirated. This procedure of replacement of

the fluid by lavage fluid and subsequent aspiration should be continued till the resultant fluid is clear and does not show any evidence of pus.

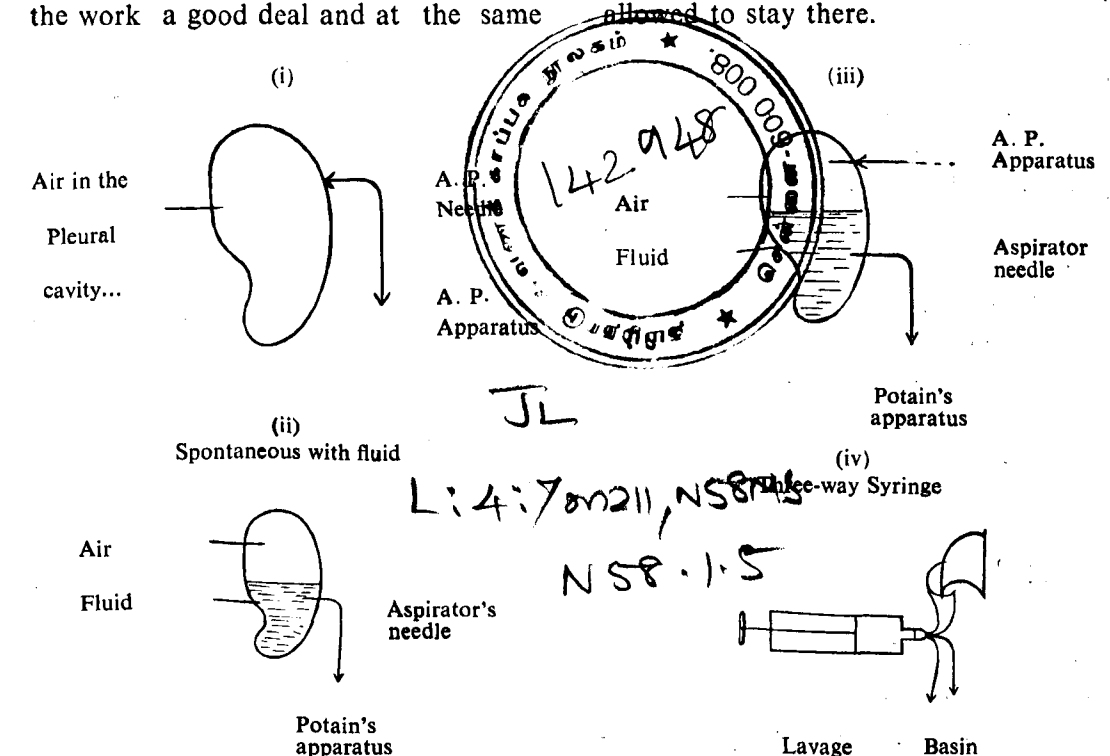
- II. This could be done with a little more ease and comfort if a three-way syringe is available. This has three nozzles; one to be connected to the pleural cavity, another to be connected to a basin and the third to be connected to a bottle containing lavage fluid. A stop-cork shows the direction in which the nozzle is open.

By means of this procedure you know exactly the amount of pus that has been withdrawn and at the same time you can be certain of the exact amount of fluid put in for the purposes of lavage. This type of three-way syringe facilitates the work a good deal and at the same

time is less painful so far as the patient is concerned as it does not require frequent manipulation of the needle in the chest cavity.

In recent years, with the introduction of the antibiotics in the treatment of tuberculosis, infiltration of antibiotics in the pleural cavities is being opted with increasing frequency. In addition to the administration of the antibiotics, Streptomycin and PAS intramuscularly are introduced in the pleural cavity at the same time. The usual method of administration is as follows :

One grain of Streptomycin is dissolved in 2c. c. of re-distilled water and to 1 c. c. of this solution, 10 lacs of penicillin is added and the combined solution is introduced into the pleural cavity, after withdrawing a few c. c. of fluid and allowed to stay there.



The remaining $\frac{1}{2}$ gramme of Streptomycin is given intramuscularly.

Encouraging results have been obtained both with regard to decrease in toxæmia as well as disappearance of pus from the pleural cavity. In my experience for the last 15 years, this method of treatment of Pyo-Pneumothorax has been undertaken in more than 200 to 300 cases and the results have been very encouraging in practically all of them. For the last ten years, the author has not had any difficulty in the treatment of Pyo-Pneumothorax and has not lost even a single case.

Other agents like Varidace have also been introduced for purposes of infiltration into pleural cavity but their application is limited and not so universal as in antibiotics. Introduction of PAS into the pleural cavity has produced encouraging results in cases where Streptomycin has not been useful. PAS is introduced in the pleural cavity in the form of a solution. Usually 18 grammes of PAS is dissolved in 100 cc of normal Saline and introduced in the pleural cavity after 100-200 cc. of pleural fluid has been withdrawn. This procedure should be continued twice a week till the pleural cavity has completely cleared.

By any of these procedures we could to a large extent obtain the disappearance of pus and if persisted, the reformation of fluid is to a very large extent discouraged and ultimately absorbed. In course

of three to six months the pleural space could be dry and the question of refilling the pleural space has to be considered.

The presence of free space in the pleural cavity is always a potential danger and is liable to infection at any time. Hence, every attempt should be made to close this pleural space by some method or other. There are two methods by means of which this obliteration of the pleural space could be obtained. Both these methods are surgical procedures which have to be undertaken in an institution equipped for chest surgery.

1. *De-cortication*: The pleural cavity and the pleura is opened into visceral which is covering the substance of the lung and has become thickened due to the deposit of fibrin is to be peeled off, so that the lung when freed, can re-expand and occupy the pleural space. This can only be done if the toxæmia has been completely controlled and the pleural space is absolutely dry. Otherwise this method cannot be undertaken.

2. The second method is to reduce the pleural space as much as possible by Thoraco Plasting. It may require a total Thoraco Plasting and the removal of nine ribs on the diseased side. In cases where the collateral lung shows evidence of tuberculus it is best to do a plasty. In cases where the collateral lung is practically free the unexpanded cornified lung on the diseased side can be removed. This usually is referred as Pneumonectomy.

GLEANINGS FROM THE MEDICAL PRESS

ORAL TREATMENT OF DIABETES: PRIMARY AND LATE RESULTS IN MATERIAL OF 200 CASES. A Edlen, L. Hermansson and S. Strandquist. *Nord. med.* 1659-1662 (Oct. 31) 1957 (In Swedish) (Stockholm) via J. A. M. A. Vol. 166 No. 14-1781.

Of 200 patients orally treated for diabetes together with a restricted carbohydrate diet, 120 had previously been treated with insulin. Carbutamide (BZ-55) was given in 160 cases and D-860 in 40; no special difference in result was noted. The average age of the men was 62 and of the women, 65. One hundred sixty patients were observed for 6 to 14 months, and of the rest only 5 were observed for less than 2 months. Only 38 had diabetes for less than one year. In 58 of the 77 men and in 97 of the 123 women the primary reaction to the orally administered treatment was favourable. The shorter the duration of the diabetes, the better the primary result, but a good result is not excluded even in patients with diabetes of long standing. Previous insulin treatment does not exclude a good result of orally given treatment, but the absence of insulin treatment substantially improves the possibilities. An insulin requirement of a dose of more than 40 international units is considered prognostically unfavourable in judging the possibility of successful tablet treatment. Complications of treatment were observed in 13 cases. Hypoglycemic symptoms, seen in 8 patients, disappeared on decreased tablet dosage. After a shorter or longer time some patients responded increasingly less well to the orally given treatment. No external cause for the lessened effect could be found. In nearly all of

these patients increased dosage, change of preparations, and stricter diet were without avail. After orally given treatment for 2 to 12 months, it had to be replaced with insulin therapy in 28 patients, of whom 23 had insulin treatment previously.

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LONG-CONTINUED TREATMENT WITH TETRACYCLINE AND PREDNISOLONE IN CHRONIC BRONCHITIS: A CONTROLLED TRIAL. E. M.: Moyes and R. A. Kershaw. *Lancet* 2: 1187-1191 (Dec. 14) 1957 (London). via J.A.M.A Vol. 166, No. 14-1794.

Chronic bronchitis was defined for the purposes of this trial, as chronic condition of at least 2 years' duration, characterized by a productive cough throughout the year and associated with dyspnea and bronchospasm. Preference was given to patients with pus in their sputum, and only those with moderate or severe disability were accepted. Care was taken to eliminate patients with typical bronchial asthma and with the so-called asthma-bronchitis or infected asthma, where differentiation between the two conditions is difficult, 1 merging into the other as infection supersedes on an asthmatic basis. Also excluded were patients with past or present evidence of cardiac failure, significant hypertension, peptic ulceration, or mental instability, who might have responded unfavourably to steroid therapy. Patients of group A, who served as controls, were given dummy tablets for 7 days and then aminophylline. Those of group B received first 500 mg. of tetracycline 3 times a day for 7 days, thereafter 250 mg. plus aminophylline. Those of group C received the same doses of tetracycline as did those of group B, and in addition 5 mg. of prednisolone 3 times a day.

Significant and often dramatic improvement was observed in 60% of the patients in the 2 groups who received tetracycline. This compares with 6% improvement in the group in which dummy tablets were substi-

tuted for the antibiotic. Diarrhoea was reported by 33 (60%) of the 55 patients who received tetracycline. In 19 it was mild, but in the other 14 it was severe enough to call for modification of treatment. In 5 patients the administration of tetracycline was stopped temporarily until the symptom abated; in 3 a reduction in dosage for a week or 2 sufficed. Four patients were never again able to tolerate more than 500 mg. of tetracycline twice a day; in 2 other patients, long-continued treatment with oxytetracycline in 1 and sigmamyacin in the other was substituted after efforts to reintroduce tetracycline therapy had failed. The results were practically the same in the 2 groups who received tetracycline, regardless of whether prednisolone or aminophylline was given in addition. This suggests that corticosteroids have little, if any, value as maintenance therapy in patients with chronic bronchitis.



A NEW METHOD FOR TREATING SLOW-HEALING WOUNDS. A. B. Rosenberg, *Postgrad. Med.* 23: 49-60 (Jan.) 1958 (Minneapolis) via J.A.M.A. Vol. 166, No. 14, Page 1791.

The author reports on 9 patients between 57 and 83 years of age with pigmentation and stasis ulcers of varying size and varying duration up to 20 years who were treated as follows. Ten thousand fibrinolytic units of human profibrinolysin (Proactase), 150 units of hyaluronidase (Diffusin), and 5000 units of Streptokinase-streptodornase (Vardase) were reconstituted in isotonic sodium chloride solution and applied on wet compresses to the affected area. The sole function of the small amount of streptokinase used was to transform the inactive profibrinolysin into the active enzyme fibrinolysin. The compresses were covered with a light bandage and applied daily for a few days a week to several. Weeks with a single exception the patients were at all times ambulatory and were seen at the author's

office. No other medications were applied during the intervals of treatment.

The use of activated profibrinolysin with hyaluronidase resulted in the cure of 8 of the ulcers. One patient died from other causes during the course of the treatment, but the ulcer for which he was treated showed marked improvement despite excessive edema. The use of activated profibrinolysin did not produce any side-effects such as pain, fever, necrosis, or other sequelae. The treatment was less expensive to the patient than hospital care, and the patients were free to pursue their normal occupations.

Poor blood circulation and the infection of the wound area are 2 of the most important factors for the delay in wound healing. A poor blood supply due to varicosities or thrombosis deprives the area of nutrition and prevents the formation of healthy granulation tissue and epithelization. Infection is responsible for the production of the exudate and epithelial debris which block the intercellular spaces, preventing ingress of oxygen and nutrients. Hyaluronidase combined with activated profibrinolysin, which lyses the fibrinous exudate, aids in producing intercellular passage of these necessary components. The removal of debris and the increased permeability promote healing by the production of healthy granulation tissue and epithelization.



FATAL REACTIONS TO PENICILLIN (V. M. Smith, *New England J. Med.*, 257: 447-451, Sep. 5, 1957). (via *Anti-septic* Aug. 1958.)

It has been estimated that more than 1,000 deaths from serious anaphylactic reactions to penicillin have occurred in the United States alone. Testing for sensitivity before penicillin administration is not routinely done because of what is involved in the usual techniques of skin testing. The test requires preparation of various dilutions of penicillin and special handling, it is con-

sidered inconvenient by physicians since the materials are unavailable in many military stations, and it has been reported unreliable in the detection of penicillin sensitivity. In the procedure of the test for this study, a skin scratch 3 or 4 mm. long was made with a hypodermic needle so as to penetrate only the outer skin layer, and 1 drop of penicillin solution (300,000 units per cc.) was applied. Another drop of penicillin was placed on a momentarily retracted lower eyelid, and the test sites were observed for 20 minutes. Itching, diameter of redness, and wheal of the skin (measured across the skin scratch) and itching, watering, redness, and oedema of the eye were noted.

Of the 1,365 subjects interviewed, 64 (4.7%) described previous penicillin sensitivity reactions. Of these, 48 (78%) had delayed urticarial reactions; 4 (6%) had a serum-sickness type of reaction manifested by fever, urticaria, and joint inflammation, and 12 (18%) had anaphylactic collapse within a few minutes of the penicillin injection. Of a total of 1,365 subjects tested with full-strength procaine penicillin solutions one person had a systemic reaction to the tests, and 25 (1.1%) gave positive responses. Ten of the latter were known to have anaphylactic reactions to penicillin, and one died. There was no immediate sensitivity reaction among 777 patients given intramuscular injections of 600,000 units of procaine penicillin immediately after they demonstrated negative test responses. Of twelve subjects with a history of previous anaphylactic reaction to penicillin, 10 manifested positive test responses; 2 patients, whose reactions had occurred 18 and 39 months before the tests, did not. This suggests that anaphylactic sensitivity is of a transient nature and that persons who recover from anaphylactic reactions to penicillin can, after an appropriate interval, safely receive the drug. No correlation was demonstrated between immediate test responses and delayed penicillin reactions or

other personal and family allergy. Deaths due to penicillin sensitivity are caused by immediate anaphylactic reactions rather than by the delayed urticarial or serum-sickness type of reaction; thus the purpose of this simplified procedure is to identify persons who are likely to have potentially fatal immediate anaphylactic reactions to penicillin.



OUT PATIENT P. A. S. THERAPY— (Dixon, W.M., Stradling, Peter. Wootton, I.D.P., *The Lancet*, No. 700: Nov 2/1957). via *India. Jl. of Tuberculosis*.

Of the 151 patients (59 women and 92 men) only 76 (50%) gave a positive reaction for P.A.S. in their urine.

Of the 99 patients, who were working 57 urines (57%) gave a positive results, whereas 19 (36%) of the 52, not working were positive.

The working men with 66% of positive urine tests yielded a higher figures than the working women (42%). Duration of chemotherapy and preparation used, made little difference to the results.

The determination of P.A.S. within urine was made by the 3% ferric chloride test.

With this technique false positives are few and second test is unnecessary, of all the out patients of one clinic, the specimens of urine tested without notice, showed that only half the patient had P.S.A. in their urine.

It is suggested that P.A.S. is not a suitable drug for long treatment of out-patients.

The side effects such as nausea was noticed in 30% of the patients. 33% of patients in the Medical Research Council trial had diarrhoea.



TREATMENT OF TUBERCULOUS MENINGITIS A COMPARATIVE TRI- VAL BY A SCOTTISH JOINT COMMITTEE *The Lancet*, No. 699.

(October 19, 1957. Via Indian Jour. of Tuberculosis, Apr. 58.)

Results of treatment of 111 cases of Tuberculous meningitis are presented. By random selection the cases were divided into 3 groups.

1. 30 were in the standard group, who had streptomycin intramuscularly, 1 gm daily for 6 months and intrathecal 100 gm streptomycin daily for 28 days subsequently three times weekly, twice weekly and once weekly consecutively for a period of four weeks each.

Along with P.A.S. was given orally in dosage of 15 gm. daily.

2. 43 were in the Isoniazid group: Isoniazid was given in a dosage of 10 mgm. per kilogram of body weight daily to a minimum of 500 mgm. daily along with P.A.S. as in the standard group.

3. Compromise group: The treatment was same as in the Isoniazid group and along with streptomycin was given bi-weekly both by the intramuscular and intrathecal routes.

All the patients had a careful clinical examination including Mantoux testing and radiographic studies.

Bacteriological diagnosis was confirmed by examination of C.S.F. by direct microscopy, culture or by guinea pig inoculation.

The cellular, protein and sugar content of the C.S.F. was estimated on admission and weekly during course of treatment.

EFFECT OF TREATMENT

Of the 21 deaths (19% mortality), 8 were in the standard group. 6 in the Isoniazid 7 in the compromise group. The death rate was high amongst the youngest and the oldest in each of the treatment group.

One death occurred amongst the 25 classified as early 10 among the 61, classified as intermediate and 10 amongst the 25 advanced cases.

No relapse occurred amongst the compromise group and only 1 relapse occurred in the Isoniazid group.

Isoniazid and compromise group had higher proportion of complications than the standard group (37% 31% and 23% respectively). In the Isoniazid group the C.S.F. returned to normal little earlier than the others. In view of the unsatisfactory progress, changes in treatment were brought about and such changes were more in the standard group.

Side effects such as peripheral neurites occurred in 4 and 1 had blurring of vision, these were all in the Isoniazid group.

With the inclusion of Isoniazid therapy, intrathecal streptomycin is not considered essential part of the treatment of T.B. meningitis.

RESEARCH & LABORATORY NEWS*

A NEW SULFA

A new sulfa drug, permitting considerably lower dosage, is substantially altering sulfa therapy and contributing, in the process, to renewed interest in these oldest of 'wonder drugs';

The new comer is Lederkyn, known to chemists as sulfamethoxypyridazine. It has come into use throughout the world in recent months.

Its action is so much longer lasting than that of any previous sulfa, that amounts, as small as one-eighth of those hitherto required, accomplish the same results against infection. Maintenance dosage, for instance calls for only one-half gram a day, whereas four grams of other sulfas are necessary for the same purpose.

The new drug remains in the blood for days, compared to only a fraction as long with other sulfas. Consequently only one dose, instead of several, is necessary every 24 hours.

Lederkyn underwent two years of clinical testing before being generally introduced not long ago. At a Conference on Sulfonamides sponsored by the New York Academy of Sciences six groups of investigators reported their findings.

They described with special interest the value of the new drug against long-lasting infections. Stubborn genito-urinary infections were mentioned in particular, as well as rheumatic fever, where the patient must be protected for extended periods from streptococcal infections. In addition to these, Lederkyn has been found effective in most of the diseases which yield to earlier

* *Bulletins received from Manufacturers*

sulfas, such as bacterial dysentery and upper respiratory infections. It is absorbed rapidly across the blood-brain barrier.

Side effects are reported minimized by Lederkyn because of its considerably greater solubility in the body and the lower dosage requirement. It thus tends to make available to physicians the therapeutic power of the sulfas without some of the problems hitherto associated with their use.

This latest and furthest sulfa advance climaxes a full generation of research and development of these drugs. The first, sulfanilamide, was discovered in Germany in the mid-1930's. A partial realization of Dr. Paul Ehrlich's dream of a "magic bullet" which would hunt down and destroy specific infectious bacteria, it created a worldwide medical sensation.

Its power against pneumonia, for instance, was astounding at the time. Pneumonia had been from time immemorial one of the principal killers. In short order, sulfanilamide cut pneumonia death rates by 80 per cent.

And so it went. Against certain other infections, the new drug was not invariably quite as dramatically effective as that, but its power was still beyond any ever seen before.

Sulfanilamide was not perfect, however, and problems remained, especially those of side-effects. From the beginning, therefore, improvement was sought and was steadily achieved, step by step.

One of the chief sources of such advance was Lederle Laboratories Division, American Cyanamid Company, developers of the new Lederkyn. Lederle had been a pioneer in the original industrial production of sulfas, immediately after their emergence from experimental status. And thereafter the company steadily and successfully—pursued the search for new and better types. Sulfadiazine, which was used by the ton in the last war, and sulfaguanidine

are among earlier sulfas resulting from reasearch.

As years went by, the sulfa family grew to be one of the largest in medicine. The current edition of a standard physician's reference book lists 300 dosage forms of sulfas and sulfa-antibiotic combinations. Some of them are sulfapyridine, sulfathiazole, sulfamerazine, sulfamethazine and the so-called "triple sulfas", the meth-diamer-sulfonamides. These combine three different kinds of the drug, so that the potential toxic effect of each is held to a minimum and total toxicity is less than with one type alone.

Problems of side-effects notwithstanding, sulfas have continued uninterruptedly to be one of the main reliances of the doctor. Many people suppose that penicillin, Aureomycin chlortetracycline, Achromycin tetracycline and other antibiotics have supplanted sulfa, but this is a misapprehension. United States sulfa sales for 1957 are estimated at \$ 40,000,000, the highest ever, more even than in the wartime peak year of 1943, when huge amounts were used to protect war wounded troops.

Doctors to-day regard the sulfas and the newer antibiotics as mutually complementary rather than competitive. And especially with sulfa research still steadily producing improvements, the place of these reliable standbys is considered secure in the medical world.

SYMPOSIUM ON ANTIBIOTIC THERAPY

Leading scientists from all parts of Italy gathered in Milan recently for the first European symposium devoted to a review of the most recent achievements in antibiotic therapy. Two Nobel Prize winners, Professor Ernest Boris Chain, a developer of penicillin, and Professor Daniel Bovet, Nobel Prize winner for chemistry, presided over the two-day sessions.

Entitled *Giornate Antibiotiche*, the meetings were sponsored by Italy's National

Societies of microbiology and chemotherapy and *Minerva Medica*, organ of the Italian Medical Association, in cooperation with Pfizer Corporation. Scientists representing most medical and surgical specialties were on hand to discuss the results of their research and experience with antibiotics.

Lady Fleming, widow of the discoverer of penicillin, attended the Symposium as a guest of Pfizer Italiana. In her talk, Lady Fleming, a medical bacteriologist who is engaged in the study of resistant organisms, stressed the importance of international antibiotic investigations.

The main topic under discussion at the symposium was the role of combinations of antibiotics in control of bacterial infections. The combination receiving most attention was that of oleandomycin and tetracycline, which, numerous speakers reported, had achieved remarkably good clinical results.

Professor Aldo Cimmino, Director of the Institute of Microbiology of the University of Rome, stressed the great effectiveness of such combinations of antibiotics as oleandomycin with tetracycline and penicillin with streptomycin against strains of bacteria which have developed resistance to other known antibiotics. The tetracycline-oleandomycin combination, which was developed by the Pfizer company and is known as Synermycin, has been highly effective, he said, against a number of infections that have failed to respond to other drugs.

Although a few speakers expressed reservations about the new idea of combining antibiotics, the general conclusion of the symposium was that the "synergistic" action of combined antibiotics is "the most important development in this era of wonder drugs".

The great decrease in mortality from infectious diseases since the introduction of combined antibiotic therapy was emphasized by Professor Vittorio Puntoni, Director of the Institute of Hygiene of the

MEDISCOPE

University of Rome. He pointed out that the death rate from tuberculosis has decreased considerably during the last few years as a result of the introduction of streptomycin and INAH.

Both Professor Cimmino and Professor Giuseppe Giunchi of the Medical Clinic of the University of Rome discussed the growing frequency of staphylococcal infections. Professor Giunchi said these were becoming increasingly difficult to treat since therapy is hindered by antibiotic resistance. He said combined antibiotics appear to reduce the emergence of the resistant bacteria.

The growing importance of staphylococcal infections was also stressed by Professor Ferdinando Cislighi, Director of the Pediatric Division of the *Ospedale Maggiore* of Milan. He said that originally tetracycline brought about a reduction in morbidity and mortality due to penicillin-resistant staphylococcal infections in infancy. Recently, he said, staphylococcal infections in children have again increased, with a considerable number of pulmonary infections seen during the second 'flu epidemic.

Professor Cislighi said clinical results and laboratory tests had led him to conclude that antibiotic combinations are most effective against both localized and general infections. Best results were obtained with the oleandomycin-tetracycline association, he added.

The problem of "super-infections" was cited by Professor Giovanni Cottini, Director of the Dermatological Clinic of the University of Catania. He said he had found the solution to the problem was the use of the oleandomycin-tetracycline combination, which, he said, gives outstanding results even in severe cases like septicaemia and staphylococcal pneumonia.

During the Symposium, two Pfizer scholarships valued at £500 each were put at the disposal of the *Giornate Antibiotiche*. The first scholarships will be awarded to medical students next year.

MEDISCOPE

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Notes & News

CLINICS FOR CHILDREN

A Peripheral Pediatric (Child Care) Centre of the Institute of Pediatrics, Madras Medical College, was declared open this evening by Mr. M. A. Manickavelu, Minister for Public Health and Revenue, at the premises of the Corporation Child Welfare Centre in Vijaya Vigneswarar Kott Street, Choolai. This centre is one of six such centres to be started in the various parts of the City.

Dr. V. R. Thayumanaswami, Director of Medical Services, said that the idea of the clinic was to attend to simple cases of children's diseases, so that cases which required more detailed examination, and specialised care, could be referred to the hospitals. The project was a joint venture of the Madras Corporation, the Government of Madras, the Government of India, WHO and the UNICEF.

Dr. S. T. Achar, Pediatric Expert of the General Hospital, said that the Government of Madras was one of the first States in India to implement the child health scheme embodied in the blue book on the Second Five-Year Plan. The opening of the clinic marked the beginning of this plan in operation. He said that advice to mothers about the diet or about the up-bringing of their children or on preventive immunisations, could be better given in the peripheral clinics than in the crowded outpatient departments of teaching institutions. Moreover, it was not advisable for children with cold, whooping cough or other infectious conditions to gather together as it happened in a hospital out-patient department, since the waiting children ran the risk of infection.

The second objective of these clinics, Dr. Achar said was to provide effective preventive care to the children of the locality in respect of diseases like typhoid, diphtheria, tuberculosis of the brain and severe diarrhoea. The third objective was

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to teach mothers through informal talks, various aspects of infant nurture which could be carried out under the conditions prevailing in their homes. Another major

aspect of the peripheral clinic was it would serve as a training ground for medical students, public health nurses, health visitors, etc.

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Khandelwal Laboratories Private Ltd., offer Cardioplon tablets as a choice drug for the effective treatment of Coronary insufficiency and Coronary occlusions both prophylactically and therapeutically.

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Phenobarbitone: acts as a central sedative and tranquilizer relieving the patient of his anxieties during the critical stage following mild or severe damage to myocardial conditions.

Clinical trials by expert cardiologists have shown good clinical response and did not record a single case where the blood pressure suddenly dropped down.

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Description: Each tablet contains 125 mg. (200,000 units) of the new oral penicillin, potassium penicillin V. By combining rapid solubility in the stomach with acid stability, Wyopen Vee gives high blood levels swiftly and reliably. Following its administration, peak concentrations are regularly achieved within 15-30 minutes.

Indications: For the treatment of all penicillin-susceptible infections including some of the more serious infections hitherto treated by parenteral penicillin.

Dosage: 1-2 tablets three times daily. In more serious infections, the dosage should be increased appropriately.

Supply: Bottles of 12 tablets.

WYOPEN VEE SULFAS (John Wyeth)

Description: Each tablet contains 90 mg. (150,000 units) potassium penicillin V along with 0.25 Gm. each of sulphadiazine and sulphamerazine.

The combination of the newly developed potassium penicillin V. which produces high and rapid penicillin blood levels reliably and the two clinically proved sulphonamides makes Wyopen Vee Sulfas a broad-spectrum chemotherapeutic agent, useful in a wide range of bacterial infections.

Indications: For the management of mixed infections and secondary complications; in infections where the causative organism may be more susceptible, or less likely to develop resistance, to the combination than to either agent alone; and for initiation of therapy in cases pending bacteriological confirmation.

Dosage: 2-4 tablets initially followed by 1 or 2 tablets every 6 hours.

Supply: Containers of 12 tablets.

Literature and further information available upon request from John Wyeth & Brother Limited, Steelcrete House, Dinshaw Wacha Road, Backbay Reclamation, Bombay-1.

DELTACORTRIL INTRAMUSCULAR

The intramuscular form of Prednisolone. Deltacortril Intramuscular a Product of Pfizer has recently been introduced in the local market by Ravison Pharmaceuticals Private Ltd.,

Deltacortril, has been found to be five times more potent than cortisone or hydrocortisone with minimum effect on electrolyte and water metabolism. With Deltacortril now made available in intramuscular form, fast intensive corticoid control could now be attained in seriously ill or debilitated patients, in the presence of vomiting or coma and in patients undergoing surgery where oral corticosteroid therapy is impracticable. Deltacortril Intramuscular affords a convenient and precisely controlled dosage and is free of local irritation or pain. On mg. for mg. basis it is equipotent to oral Deltacortril therapy and is used in the treatment of acute and severe arthritis, asthma, allergy and inflammation.

Deltacortril Intramuscular is an aqueous suspension of prednisolone, containing 20 mg. of prednisolone acetate per cc. of solution. It is supplied in 3 cc. rubber capped vials.

TERRAMYCIN PREMIXED PEDIATRIC DROPS

Ravison Pharmaceuticals Private Ltd., Bombay, have recently introduced for pediatric practice new Terramycin Premixed Pediatric Drops. This ready-to-use delicious dosage form replaces the original Terramycin Pediatric Drops which was available in dry-powder form.

In Terramycin Premixed Pediatric Drops, Terramycin the best tested and best proved broad-spectrum antibiotic has been made available in the best tasting vehicle. It is wild-cherry flavoured and leaves no aftertaste. No reconstitution, as with the dry powder form, is necessary and the preparation is stable at room temperature for two years even after the vial is opened. It is a completely homogeneous preparation with viscosity and dispersion rigidly controlled, with the result that every drop delivers the same high potency and accurate dosage is assured.

Terramycin Premixed Pediatric Drops is made available in 10 cc. vial, each cc. providing 100 mg. of Terramycin, with specially calibrated dropper.

LEDERCORT

LEDERCORT is a product of Lederle corticosteroid research - created to minimise the major deterrents to all previous steroid therapy. It offers increased potency for greater clinical effectiveness; reduced dosage and the distinct advantage of fewer side effects.

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