

ABSTRACTS

This section of THORAX is published in collaboration with the two abstracting journals, Abstracts of World Medicine, and Abstracts of World Surgery, Obstetrics and Gynaecology, published by the British Medical Association. In this Journal some of the more important articles on subjects of interest to chest physicians and surgeons are selected for abstract, and these are classified into five sections: experimental; tuberculosis; neoplasm; asthma; thoracic surgery. Each section is not necessarily represented in any one issue.

Experimental

Some Physiological and Pathological Conditions of the Oesophagus. ARUTYUNOV, A. A., and OGANESYAN, O. H. (1949). *Vestn. Oto-rino-laringol.*, 11, No. 4, 15.

Kymographic records were made from the oesophagus of 58 subjects, of whom 12 were healthy, 10 had a carcinoma of the oesophagus, 15 an organized stricture, 13 a functional disturbance, and the remaining 8 had had foreign bodies impacted in the oesophagus; 648 tracings were made. A gum-elastic bougie, to which an inflatable rubber balloon was attached, was passed into the oesophagus, the stomach being empty, and its position checked on the fluoroscopic screen by giving some barium emulsion. Each patient also underwent oesophagoscopy. The balloon was connected to a kymograph, and a base-line pressure of 10 mm. Hg was maintained.

Passive movement of the oesophagus due to respiration occurs at all levels. Rhythmic peristalsis of the oesophagus in the normal person, beginning on swallowing, is shown on the kymograph tracing as a wave of distinct amplitude, rising sharply to a peak and falling steeply. The amplitude at the cardia is relatively greater than at the two upper points of physiological narrowing. This is due to the relative increase in smooth muscle lower down the oesophagus until at the cardia it displaces the striated muscle. Injection of adrenaline increases both the peristalsis and the passive movement of the oesophagus. Atropine diminishes the muscle tone without altering the character of the wave form on the tracing.

Investigation of the patients, who had had foreign bodies removed from the oesophagus, showed in all cases a greater amplitude of the peristaltic wave, and notching in the wave during the phase of relaxation. The tracing in

the patients with "cardiospasm" showed a chaotic wave with multiple peaks of varying amplitude. In the more extreme case of cardiospasm the pressure rose on contraction of the muscular wall and remained on a plateau for 25 to 50 seconds at each contraction. Injection of adrenaline "normalized" the wave form, but the range differed and a few pathological peaks were seen. Both the kymographic tracing and the ability to take solids improved after therapeutic doses of atropine and papaverine.

The tracing in a patient with carcinoma of the lower third of the oesophagus showed marked deformation with two or more peaks on the summit of each wave, increased tone, and irregular rhythm. Some degree of "normalization" of the wave form followed an injection of atropine.

Stephen Suggit.

Streptococcal Enzymatic Debridement. TILLET, W. S., SHERRY, S., CHRISTENSEN, L. R., JOHNSON, A. J., and HAZLEHURST, G. (1950). *Ann. Surg.*, 131, 12.

This is a further report on the results of treatment with streptokinase (streptococcal fibrinolysin) and streptodornase (streptococcal desoxyribose nuclease) in a variety of conditions accompanied by fibrinous or purulent exudate. These included post-pneumonectomy and traumatic haemothorax, sterile and bacterial empyema, osteomyelitis, paranasal sinusitis, and miscellaneous chronic ulcerative lesions. The enzymes are derived from cultures of haemolytic streptococci, and partially purified extracts contain both streptokinase and streptodornase.

The dose for intrathoracic use is given as 100,000 to 400,000 units of streptokinase and 5,000 to 40,000 units of streptodornase. By illustrative case histories the usefulness and rapid effectiveness of this treatment is demonstrated. The streptokinase system is responsible for the rapid lysis of fibrinous exudates; the

need for decortication is thus obviated in many chest conditions. In the presence of infection the tissue surfaces are coated with desoxyribose nucleoprotein of purulent exudates in addition to fibrin. The nucleoprotein also tends to enclose and protect the infecting bacteria, hence the value of adding streptodornase.

In successfully treated cases marked thinning of the exudate is accompanied by the outpouring of viable leucocytes and a decrease in the number of, or disappearance of, the infecting organisms. The infecting bacteria are also rendered accessible to the host's defence mechanisms, humoral or cellular, as well as to chemotherapeutic agents. The enzymes appear to possess an unusual effect on tissues, promoting regeneration of soft tissues and epithelium. *E. Nassau.*

Treatment of Lung Abscess. SUTHERLAND, A. W., and GRANT, L. J. (1950). *Lancet*, 1, 530.

The authors have analysed the methods and results of treatment of 32 cases of lung abscess in the London Chest Hospital. They discuss the literature relevant to the treatment of acute and chronic lung abscess. The majority of the 32 patients have been followed up for more than a year; 7 were treated by drainage and the remainder by administration of various doses of penicillin and by postural drainage. Those treated with penicillin were further subdivided into two groups, those receiving one million units per day or more and those receiving less than this amount. Of the former group one patient died before his infection could be controlled, but of the remaining 18, 15 were completely cured and 2 were greatly improved but not completely radiologically clear. In only 3 of the 6 cases in the low-dosage group was complete cure achieved, the figure for the group treated by drainage being 3 out of 7. The authors conclude that the optimum method of treatment for lung abscess is by combining administration of large doses of penicillin (two million units daily) with postural drainage, and feel that surgical drainage is now obsolescent. *J. R. Belcher.*

Neoplasm

Stricture of the Mesopharynx as a Late Consequence of Radiotherapy of the Upper Respiratory and Alimentary Tracts. STEINMANN, H. (1949). *Oncologia, Basel*, 2, 217.

Ten cases of mesopharyngeal stricture are described, out of a total of 200 cases of treated neoplasms of the pharynx; this complication has

scarcely been mentioned in previous literature, possibly because of the long period of observation needed. The sites of the primary tumour were mesopharynx, 5; epipharynx, 3; hypopharynx, 2; the site of the stricture is constant, at the junction of the mesopharynx and hypopharynx, at the level of the tip of the epiglottis. Three stages of development are recognized, beginning with formation of folds in the lateral walls, or swelling and shortening of the normal folds, such as the pharyngo-epiglottic; next, slight stenosis appears, with symptoms always more pronounced than the objective findings; finally, anatomical stenosis becomes obvious, resulting in one case in a lumen no wider than a pencil. The latent interval before onset of dysphagia was very variable, from $1\frac{1}{2}$ to 10 years, with structural changes apparent later, at 2 to 13 years.

In no case was the outcome fatal, though tracheotomy was necessary in one case and regular dilatation with bougies in another. The distinction from recurrence is important; radiological examination with a contrast medium is helpful, showing a constant notching in the pharyngeal wall. In these cases no recurrence was seen in association with the strictures. The doses of deep x rays used were always high, the lowest being 7,155 r in 31 days, the next 7,722 r in 24 days; the rest ranged from 8,000 to 13,000 r. The constancy of the level of the stricture cannot be due to the site of the growth, but must have an anatomical basis; it is attributed to the relative lack of support of the middle of the pharynx compared with the upper and lower ends. *J. Walter.*

Thoracic Surgery

The Surgery of Pulmonary Stenosis. Experiences with Left Subclavian to Left Pulmonary Artery Anastomosis. HOLMAN, E. (1949). *J. thorac. Surg.*, 18, 827.

The Blalock-Taussig type of operation for pulmonary stenosis has become established as an effective form of treatment, but individual experiences have suggested minor modifications and in this paper the author discusses his results in 34 cases.

An anastomosis was carried out in 27 cases with good results in all but 3 patients, one of whom died after operation, one of thrombosis at the junction, and one of haemorrhage. The fate of the remaining patients on whom anastomosis was not carried out is an indication of the hazards of this form of surgery, 3 children succumbing

before an anastomosis was undertaken and a further 2, considered unsuitable for anastomosis at thoracotomy, dying shortly afterwards.

The author prefers union of the left subclavian to the left pulmonary artery to other variants; if the angulation of the subclavian across the aortic arch is too sharp the left pulmonary artery can be divided centrally and the cut pulmonary end allowed to rise and lie comfortably.

T. Holmes Sellors.

The Surgical Treatment of Mitral Stenosis. II. Progress in Developing a Controlled Valvuloplastic Technique. HARKEN, D. E., ELLIS, L. B., and NORMAN, L. R. (1950). *J. thorac. Surg.*, 19, 1.

Experience gained in the performance of valvulotomy in 3 further cases of mitral stenosis is discussed in detail, with full case notes. One patient was markedly improved, one died on the table from haemorrhage, and one 4 days later of pulmonary oedema. Excessive blood loss during instrumentation has led to the use of a plastic "operating tunnel," with introducing obturator and control sleeve, for insertion into the auricular appendix, permitting more deliberate and controlled manoeuvre and minimizing both endocardial stimulation and bleeding. With this device, a punch valvulotome was used.

Tachycardia, which increases pulmonary congestion, is especially dangerous and must be minimized by the administration of digitalis and intravenous procaine. Study of the heart at necropsy suggests that the essential lesion in mitral stenosis is not the diffuse thickening of the valves, but a well-defined fibrous ring continuous across the fused commissures, preventing both valvular closing and opening, and all surgical effort should be directed to dividing it, preferably at both commissures. While the authors have hitherto regarded the operation of "valvuloplasty" as being indicated mainly in patients with a low resting cardiac output (as determined by catheterization), not increased on effort, in whom mitral obstruction is the essential lesion, further experience shows that high-grade stenosis may exist in patients whose resting cardiac output is normal, though possibly close to the maximum attainable. In these cases also, therefore, valvulotomy may afford relief and decrease of pulmonary arterial pressure. It is recommended that, at present, this type of operation should be confined to patients whose mitral disease is uncomplicated by other valvular or myocardial lesions.

Geoffrey Flavell.

A Consideration of the Causes of Death Following Operation for Congenital Heart Disease of the Cyanotic Type. BAHNSON, H. T., and ZIEGLER, R. F. (1950). *Surg. Gynec. Obstet.*, 90, 60.

This is a valuable contribution, dealing with the operative complications and causes of death in Blalock's series of operations for pulmonary stenosis. The fatalities are analysed in a series of 500 cases operated upon in Johns Hopkins Hospital. The over-all death rate was 19.8% (99 patients).

Cerebral complications accounted for 22 deaths (4.4%), and their occurrence is easily understood when the low arterial oxygen saturation and presence of polycythaemia are considered. A number of patients who are not treated surgically suffer from some cerebral thrombosis, and it was noted that the condition is associated principally with occlusion of the carotid or innominate artery. The complication is likely to occur if the arterial pressure falls during operation or if there is insufficient oxygenation. Anoxia was also considered to be an important factor in the 21 deaths in association with arrhythmia during anaesthesia or during operation. Cardiac failure accounted for 15 deaths (3%); it is interesting to note how low this figure is although the establishment of the artificial ductus arteriosus is known to add a load to the heart. In 13 of the 15 cases it was felt that too large an anastomosis might have been constructed; if this was so it would account for the undue burden on the heart.

Haemorrhage accounted for 7 deaths (1.4%); it is an easily understood complication, but bleeding from the anastomosis is probably rare, the more usual cause being reactionary haemorrhage from collateral vessels divided during the exposure. Too early use of heparin is also a risk that has to be considered.

T. Holmes Sellors.

Coarctation of the Aorta. Report of Six Cases with Operation. STEPHENS, H. B., and GRIMES, O. F. (1949). *J. thorac. Surg.*, 18, 804.

This report of operation in 6 cases of coarctation of the aorta is valuable in illustrating some of the problems that the surgeon encounters.

(1) A boy of 16 years who had some pain in the legs was treated by anastomosing the turned-down left subclavian to the descending aorta below the coarctation. The suture was an everting one with 5-0 silk. Over a month later there was a sudden and fatal catastrophe due to haemorrhage from a rupture in the posterior wall of the junction. (2) A 4½-year-old boy com-

plained of fatigue and shortness of breath associated with great enlargement of the heart and signs of heart failure. After stabilization of the cardiac condition the child was operated upon and the stricture resected with end-to-end anastomosis. The result was excellent, the size of the heart being considerably reduced. [The accompanying radiographs suggest that the hind-ends of 4 ribs were divided in the course of operation.] (3) A male baby of 13½ months had signs of heart failure; the condition was partly stabilized. An end-to-end anastomosis after resection of the coarctation was carried out satisfactorily, but at the end of operation the child died. Death was attributed to failure to maintain the peripheral arterial pressure, even though the aortic clamps were very slowly released (4 minutes). (4) In a 34-year-old male with dyspnoea and failure of exercise tolerance the collateral circulation was very extensive, but resection and end-to-end union were carried out. It was noted that the proximal aorta seemed arterio-sclerotic and was friable, operation being most difficult. The patient died suddenly 11 days later from a haemorrhage just above the junction. (5) A 19-year-old male complained of headaches, dyspnoea, and fainting; a coarctation situated very close to the origin of the left subclavian artery was cut across and closed. The subclavian was then turned down and joined (end-to-end) to the distal aorta. Obstructing pneumatic cuffs applied to the thighs to prevent too sudden flow of blood into the limbs were gradually released after the anastomosis was functioning. (6) A boy aged 6½ years had increasing fatigue and headaches. During angiocardiology (by the retrograde carotid route) the contrast solution extravasated into the periarterial tissues as far as the aortic arch and this reaction added to the operative difficulties. The coarctation was close to the subclavian origin and was not resected; instead, the subclavian artery was turned down and joined to the distal aorta. The result was satisfactory.

[The discussion of this paper by other surgeons reveals the increasing number of coarctation operations being undertaken. Gross reported 41 resections with 6 deaths, Jones 13 operations with 2 deaths, Blalock 20 resections with 3 deaths, and Crafoord 32 operations with 2 deaths.]

T. Holmes Sellors.

Treatment of Cardiospasm. (94 Heller Operations.) SANTY, —, and MICHAUD, —. (1949). *Mem. Acad. Chir., Paris*, 75, 804.

Out of a total of 98 cases of cardiospasm, the authors carried out Heller's operation in 94, with

4 post-operative deaths. Of the survivors 91 were available for reassessment after operation, and 36 have been followed up for 3 years or more. The result was judged mainly by gain in weight and by the speed and ease with which barium was seen radiologically to negotiate the cardia. The dilatation of the oesophagus observed before operation usually persisted, even when the functional result was excellent. In 57 of the 91 patients the result was considered to be perfect, and in 5 only was it really disappointing. The operation gave good results in young and old, and is considered by the authors to be applicable however severe the dysphagia and however poor the operative risk. The risk of relapse is slight, always provided the operation has been adequately carried out. In the authors' opinion, the Heller operation should be regarded as the standard operation in the management of cardiospasm.

M. R. Ewing.

The Possibility of Differentiating Functional Oesophageal Syndromes. Diffuse Myomatosis of the Oesophagus. LORTAT-JACOB, J. L. (1950). *Sem. Hôp. Paris*, 26, 177.

A number of different operations have been performed for cardiospasm, with various results. The most successful is Heller's operation of longitudinal division of both muscle coats at the cardia; if this is performed by a thoracic approach, the oesophagus can be examined and the muscle incision made long enough. In some cases the lesion is not at the cardia, but above; in others there are scattered little grey nodules, particularly in the circular muscle layer, which are easily palpable. This condition, which is not to be confused with the solitary tumour or leiomyoma, is named by the author diffuse nodular myomatosis. The muscle fibres in these lesions are disorderly, passing in all directions, the cells being large and unequal. Two cases are described in which cardiospasm was the presenting sign, and two others in which "dyskinesia" was present with spasm at several levels. Diffuse changes were seen at thoracotomy; the symptoms were relieved by myotomy. If a barium swallow reveals multiple tiered spasms this disease is suggested. Cardiospasm can be differentiated by the x-ray appearances into the "radish" type and the "sock" type, or mega-oesophagus [differences of degree]. Heller's operation is indicated for both, but, for the latter especially, the myotomy must be of adequate length. This fact, and the possibility that unsuspected diffuse myomatosis exists, provide further reasons for preferring a thoracic approach.

M. Meredith Brown.

Resections of the Lung in the Treatment of Pulmonary Tuberculosis. BRANTIGAN, O. C., and RIGDON, H. L. (1950). *Arch. Surg., Chicago*, 60, 520.

"Resection of the lung in the treatment of pulmonary tuberculosis is indicated for those patients with unilateral disease who do poorly with medical treatment and for whom collapse therapy is not indicated because of a giant cavity, large tension cavity, destroyed lung, fibrotic bronchial stenosis, tuberculous bronchiectasis, or tuberculoma. It is also indicated for those patients who continue to have active disease in spite of adequate collapse therapy." The introduction of streptomycin has added tremendously to the safety of resection in the treatment of pulmonary tuberculosis, but improvements in anaesthesia, in surgical technique, and in the management of shock have all contributed towards safer surgery. The authors report their results in 52 resections performed on 51 patients between February, 1942, and August, 1948. The cases fall into three categories: (1) known pulmonary tuberculosis; (2) uncertain diagnoses; (3) arrested pulmonary tuberculosis, but with symptoms due to secondary suppurative changes in the distorted bronchial tree. The operations included 39 pneumonectomies and 13 lobectomies. Since streptomycin has been available the authors' tendency has been to attempt to remove all the diseased lung tissue, and a much higher proportion of cases have been treated by total resection. [This practice is in contrast to that of others, who are becoming more selective and performing segmental resections in an increasing number of cases.]

The results of operation in 29 cases receiving streptomycin (no operative death, one late death) contrast markedly with those in 23 cases treated before streptomycin was available (5 operative, 2 late deaths). Five of the patients treated with streptomycin, however, still have tubercle bacilli present in their sputum, though two of these are clinically well.

Points of interest in the operative technique include: (a) A streptomycin course starts 2 to 3 days before operation and continues for about 2 weeks after operation. (b) The bronchial stump is always covered with living tissues from adjacent regions. (c) The use of the Overholt face-down position is advocated. (d) A solution of "azochloramid" (1 in 3,300) and sodium tetradecyl sulphate (1 in 500) with sulphonamide is left in the pleural cavity as a routine. (e) An oxygen tent is used routinely for 1 to 5 days after operation. In only 3 cases was prophylactic thoracoplasty performed to prevent the impair-

ment of cardio-respiratory function or the reactivation of remaining tuberculous disease following overdilation of the remaining lung tissue. In 15 cases, however, "lucite" balls have been used to fill the residual dead space, infection occurring in only one instance.

W. P. Cleland.

Report on 140 Cases of Extrapleural Pneumothorax. PANNIER, R. (1949). *Acta tuberc. belg.*, 40, 8.

The author gives an account of the results of extrapleural pneumothorax in the treatment of 142 cases of pulmonary tuberculosis over a 2-year period at the Hospital of Saint John, Bruges. The technique was orthodox, but is only very briefly described. In 80 cases high spinal analgesia with 1 in 1,500 cinchocaine was used, and its advantages in providing a bloodless field, easy separation of the pleura, and maintenance of the cough reflex are stressed. In 2 cases the operation had to be abandoned, and in 2 others rupture of a cavity necessitated a lobectomy. The remaining patients were divided into four groups: (1) those with cavities in the upper zone about 3 cm. in diameter or less, and with little surrounding infiltration (60 cases); (2) those with more advanced ulcero-fibrotic lesions of the apices (57 cases); (3) those in whom intrapleural pneumothorax had failed (15 cases); and (4) those cases in which bilateral extrapleural pneumothorax was required (6 cases). The operative and post-operative complications and the end-results are described, and are analysed in detail in five tables.

Rupture of the cavity was the most serious complication at operation, occurring in 5 cases. Post-operative complications included effusion in 50% of cases, fever in 14%, haemorrhage and "epituberculosis" in 5%, and infection, fistulae, and collapse rarely. The early causes of death were cardiac failure in 5 cases, contralateral spread in 4, and haemorrhage and empyema in one case each; the late causes were empyema in 6 cases, effusion on the other side in 2, and spread of disease to the lung or elsewhere in 3. Bilateral disease was present in 46% of the patients, and of these 30% were thought to be cured, the rate of cure being 60% in the remainder. A comparison was made between the results obtained in group (2) with those obtained with thoracoplasty in 66 similar cases. With the latter procedure the prognosis was twice as good. The conclusion is reached that extrapleural pneumothorax is of sound value in cases of medium-sized upper-zone cavities where

nterapleural pneumothorax has failed, and where it is desirable to avoid the deformity of thoracoplasty.

[No emphasis is laid on the value of this operation in bilateral disease, and as a preliminary to thoracoplasty as shown by many surgeons in Great Britain (see Reid, *Thorax*, 1946, 1, 211).]

Donough O'Brien.

Immediate Sequelae of Extrapleural Pneumothorax. RAZEMON, P. (1949). *Acta tuberc. belg.*, 40, 3.

The author reviews the most important post-operative complications of extrapleural pneumothorax in 160 recent cases of his own. The incidence of infection has become negligible since the introduction of antibiotics. Haemorrhage was unpredictable, and not related to the difficulty of the operation. Rigid haemostasis with diathermy and packs was not considered absolutely essential; but when large clots did form good results were obtained by reopening and clearing out the cavity. In 4 cases there was severe shock starting 24 to 48 hours after operation with low blood pressure, rapid pulse, pallor, and some dyspnoea. In each case a blood-stained serous effusion was found. Two of these patients died, and it is suggested that compression of the auricles might have been the cause.

Of the less serious complications, effusions were common, but after several aspirations the cavities became dry in about 3 weeks. Surgical emphysema occurred especially where the pleural stripping had been difficult, appearing not around the incision, but in the anterior triangle of the neck and in the subclavicular and substernal areas. In an attempt to reduce the incidence of effusion and surgical emphysema the walls of the cavity were painted with citrated human plasma after haemostasis had been secured at operation. Any excess of plasma was removed, and the procedure then repeated with a thrombin solution again mopping out excess (*cf.* the use of calcium alginate gel by Millard (*Thorax*, 1948, 5, 233)). This method was found to be most successful. When muscle fragments were similarly treated *in vitro* the fibrin not only coated the surface, but also infiltrated between the superficial fibres.

[No actual figures of the incidence of effusion and surgical emphysema are given, nor is mention made of other complications that may arise such as rupture of cavities, mediastinal shift, and post-operative pain and fever.]

Donough O'Brien.

The Surgical Treatment of Recurrent and Chronic Spontaneous Pneumothorax of Non-tuberculous Origin. MEADE, R. H., and BLADES, B. B. (1949). *Amer. Rev. Tuberc.*, 60, 683.

The authors discuss their experiences in treating 18 cases of recurrent or chronic spontaneous pneumothorax. They describe the pathological findings in their series; as these patients all underwent thoracotomy, despite the admitted efficacy of silver-nitrate therapy, the diagnostic facilities were very good. In 5 cases, however, they were unable to find the cause of the spontaneous pneumothorax.

In the 8 cases of recurrent pneumothorax there were 2 with recurrent local emphysematous blebs, which were excised, the defect in the lung being sutured. In the remainder of these cases the blebs were too extensive for removal and a pleurodesis was produced by dusting with talc and sulphonamide.

Of the patients with chronic pneumothorax several had emphysematous bullae, but three had "bronchogenic" cysts. The latter were excised, and the remainder of the patients were treated by excision, repair, and, where necessary, decortication of the affected lung. No patient in the series died, and all are now apparently cured.

J. R. Belcher.

Mediastinal "Tuberculoma." Surgical Removal in Four Patients. SAMSON, P. C., HEATON, L. D., and DUGAN, D. J. (1950). *J. thorac. Surg.*, 19, 333.

The term "mediastinal tuberculoma" is one that gives rise to difficulties in definition, and it is here used to denote a mediastinal mass or cyst which on further investigation is shown to consist of a mass of tuberculous tissue with or without lymphoid elements. An accurate diagnosis of this condition is not always possible, and in the 4 cases described some other provisional diagnosis was first suggested. The conditions with which it is most likely to be confused are teratoid cysts, enlarged lymph nodes, and bronchiogenic cysts. In one case a more diffuse mass presented in the neck and a sinus developed. In some cases definite symptoms—shortness of breath and pain—occur, referable to the mediastinal mass, and the difficulty of establishing a diagnosis makes operative exploration a necessity. Removal is often a matter of difficulty on account of the firm adhesion to mediastinal structures.

T. Holmes Sellors.

Hamartoma of the Lung. BRAGG, E. A., and LEVENE, G. (1950). *Radiology*, **54**, 227.

Hamartomata are defined, after Albrecht, as "tumor-like malformations due to abnormal mixing or development of the normal tissue components of the organ." This abnormality may be the result of variations in the quality, arrangement, or degree of differentiation of the tissues, or sometimes in all three. The authors claim that the incidence of hamartoma of the lung is probably second only to that of bronchogenic carcinoma. The distribution of these tumours in the lungs appears to be roughly proportionate to the size of the different lobes, the right lower lobe being the most common site. In all reported series of cases, the predominant location has been sub-pleural, the size of the tumour ranging from a few millimetres to a maximum of 9 cm. in diameter. In the past, the majority of cases of hamartoma of the lung have been classified as chondromata because of the predominance of cartilage.

While the radiological diagnosis of hamartoma is not always possible, the characteristic x-ray findings are: (1) a sharply defined parenchymal tumour surrounded by clear lung; (2) lobulation of the margin in most cases; (3) peripheral or sub-pleural location; (4) irregular patches of calcification in many cases; and (5) areas of lesser density near the periphery of the tumour; this last is only seen occasionally, and is due to collections of fat. A hamartoma may be differentiated from bronchogenic carcinoma and from a solitary pulmonary metastasis by its very slow rate of growth. Bronchial adenomata are usually more spherical and closer to the hilum. Tuberculomata may resemble hamartomata very closely in that they may contain calcium, but as a rule they show some degree of surrounding inflammatory reaction so that the border does not appear quite clear-cut. The type of calcification which occurs in echinococcus cysts should be sufficient to differentiate them from hamartomata. The authors report 3 cases of which, strangely enough, only one shows evidence of calcification.

L. G. Blair.

The Treatment of Carcinoma of the Upper Part of the Oesophagus by Right-sided Thoracotomy Followed by Antethoracic Oesophago-gastric Anastomosis. RUDLER, J. C. (1949). *Pr. m'ed.*, **57**, 1204.

The treatment of cancer of the lower oesophagus is now established; the same cannot be said so certainly for cancer of the middle third. The author advises that thoracotomy be carried

out on the right, because dissection of a growth is then less difficult and cellular tissue and regional lymph nodes can be more adequately included. The stomach is then mobilized (through a mid-line epigastric incision), brought beneath the skin in front of the sternum, and anastomosed to the cervical oesophagus (through a third incision) after the manner of Torek, except that in all but the old and feeble it is carried out at the same operation as the resection. This anastomosis is easier to perform than one within the thorax; if it leaks—as happened in each of the 2 successful cases described—the fistula is an inconvenience rather than a potential cause of death and can easily be closed; and pleural and pulmonary complications are less likely. The functional and aesthetic results were satisfactory in the 2 cases described but the period since operation has not yet been long enough for the likelihood of recurrence to be assessed.

[No details of operative technique are given.]

M. Meredith Brown.

The Surgical Management of Lung Abscess.

KLEPSEK, R. G., and DAVIS, E. W. (1950). *Dis. Chest*, **17**, 172.

A series of 247 cases of lung abscess treated during the past 6 years is reviewed, those secondary to carcinoma or septic infarcts and those in which the patient died before treatment being excluded. All patients were first given chemotherapy and underwent bronchoscopy. In general, acute "formative" abscesses with localizing pneumonitis and a circumscribed necrotic area were cured by chemotherapy (sulphadiazine and penicillin parenterally and by inhalation; streptomycin was not found effective). Of 70 cases so treated 58 were cured; 5 patients died and 7, though not cured, refused surgery.

Acute unilocular abscesses in which chemotherapy ceases to cause improvement should be drained surgically. Of 119, 79 (64.7%) were drained in one stage; 80 were cured (67.2%), 17 requiring subsequent plastic closure of fistulae; 25 patients died (21%); in 14 cases the condition was improved, but lobectomy was needed later. In 58 cases resection (40 lobectomies, 17 pneumonectomies) was carried out, 4 patients (6.8%) dying; 50 (89%) were cured, and 4 still have empyemata. Resection was performed in cases of chronic or multilocular abscess, or where secondary bronchiectasis or extensive lung damage existed. Because of the larger number

now cured or rendered less toxic by chemotherapy, resection is more often indicated than drainage; thus of 39 patients treated since January, 1948, 20 have undergone resection and only 4 drainage.

Geoffrey Flavell.

Chronic Atelectasis and Pneumonitis of the Middle Lobe. PAULSON, D. L., and SHAW, R. R. (1949). *J. thorac. Surg.*, **18**, 747.

Lobectomy was performed in 29 out of 32 cases of chronic atelectasis of the right middle lobe.

The essential pathological condition is bronchial obstruction, and the occurrence of atelectasis, pneumonitis, and bronchiectasis is secondary to this. The bronchial wall showed inflammatory changes and oedema in most cases. In 15 the peribronchial lymph nodes were enlarged; in 8 cases calcified nodes were present, and in 4 calcified particles had eroded into the bronchial lumen. In 2 cases the condition followed the presence of foreign bodies, and in only 6 of the total series was there no evidence of lymph-node enlargement.

Symptoms were sometimes present for many years, whilst there was a preponderance of patients in early middle age. Bronchoscopy showed marked narrowing of the middle lobe bronchus in many cases, whilst bronchography revealed obstruction, incomplete filling, or crowding of the bronchi of the middle lobe in the majority of cases.

Lobectomy was undertaken in 29 cases with one death from a pulmonary embolus; no empyemata formed, but one organized haemothorax required decortication. The late results are, on the whole, satisfactory, although 3 patients still have a cough and 2 have had a recurrence of haemoptysis. In 23 cases gross changes were present in the hilar lymph nodes—enlargement, induration, or calcification. In many of the cases dense adhesions to the adjacent lobes, the pericardium, or the diaphragm were present.

The authors believe that mechanical factors play the chief part in the middle-lobe syndrome. With a short, relatively small-calibre bronchus surrounded by a ring of lymph nodes there is a tendency to retention of secretions in the lobe and narrowing of the lumen from lymph-node enlargement. In many cases the condition starts as a pneumonic infection which initiates changes resulting in a vicious circle. In 8 patients the original lesion was undoubtedly tuberculous.

The importance of the syndrome lies in its differentiation from carcinoma of the bronchus,

a factor made more difficult by the age incidence of the two diseases. In the middle-lobe syndrome the history may be longer, and calcified nodes may be seen on the radiograph; bronchoscopy and bronchography will also give valuable additional information, but even so the possibility of cancer may not be ruled out. Even at thoracotomy, differentiation may be difficult (in the discussion of this paper the use of frozen sections was mentioned).

[This paper focuses attention upon a disease complex which has recently sprung into prominence; its apparent frequency and its mimicry of carcinoma justify the attention given to it. The reader is also referred to a recent article by Brock (*Thorax*, 1950, 4, 5) on post-tuberculous bronchostenosis and bronchiectasis of the middle lobe.]

W. P. Cleland.

Emphysema of the Mediastinum and Spontaneous Pneumothorax Following Incisions in the Lower Part of the Neck. READING, P. (1949). *Guy's Hosp. Rep.*, **98**, 54.

Air may make its way into the soft tissues of the neck and thence into the mediastinum by two routes and two different mechanisms. It may be drawn in through a cervical incision during the act of inspiration, or it may leak out from the upper air passages during the act of coughing and straining with a closed glottis. Inspiratory and expiratory types of emphysema therefore occur. Both are discussed and illustrated by case reports. Mediastinal emphysema may give rise both to emphysema of the neck and to tension pneumothorax. The inspiratory variety of mediastinal emphysema is associated with laryngeal obstruction in the presence of a cervical incision.

After tracheotomy, and apparent dramatic relief of symptoms, mediastinal emphysema may yet result from the tracheotomy tube slipping out of the trachea. This disaster can be prevented by the use of a cannula of adequate length, and by the practice of tying the tube firmly into place with the neck flexed. The oft associated tension pneumothorax must not be forgotten.

If at thyroidectomy both recurrent laryngeal nerves have been injured with consequent reduction of the airway to a narrow chink, impending asphyxia gives rise to violent inspiratory efforts which suck air through the edges of the cervical incision into the neck and mediastinum. If the patient is desperately ill, both tracheotomy and aspiration of pneumothorax are indicated.

During resection of the cervical oesophagus, when the inferior constrictor muscles are

divided, the recurrent laryngeal nerves may again be severed with resulting glottic obstruction, which may cause emphysema of the neck and mediastinum and end fatally in pneumothorax. The author advises tracheotomy as a routine at the end of such operations.

In the less common expiratory variety mediastinal emphysema results from the accumulation of air expired under pressure. It has been seen after laryngofissure, probably because air was forced through a small laryngeal mucosal tear by coughing and straining after recovery of consciousness.

John Borrie.

Thoracoplasty for Scoliosis. JUSEVICH, J. S. (1950). *Vestnik Khir. Grekov*, 70, No. 2, 36.

After a short review of the various types of operation described for the correction of the costal gibbus deformity of scoliosis, the author describes the operation introduced and perfected by Kuslik of Leningrad. This operation has been performed by the author on 83 cases. It consists, briefly, in resection of the prominent portion of the ribs and in the fixation of the remaining distal part of each rib to the corresponding proximal part left attached to the vertebra. The fixation is made by silk, and the union is either a "superposition" (where the cut surface of the distal portion is in contact with the anterior surface of the proximal portion) or a "transposition"

(where the medial end of the distal portion overlaps anteriorly the lateral end of the proximal portion). In selected cases vertebrae are also fused, the resected parts of the ribs being used as a bone graft. The after-treatment consists in rest in a plaster bed and gradual resumption of ambulation in a plaster jacket.

There was only one death in this series; in 46 cases the fixation was by "superposition," in 33 cases the fixation was by "transposition," and in 4 cases it was unorthodox in type. In addition, part of a too prominent winged scapula was resected in 7 cases. The chief complications were: (1) pneumothorax in 17 cases; (2) pleural effusion in 17 cases, this being spontaneous in 11 and secondary to injury to the parietal pleura in 6; (3) pleurisy without effusion in 13 cases, this being spontaneous in 10 and secondary to injury to the parietal pleura in 3; (4) sepsis in 8 cases, including 3 cases of empyema, in 2 of which there was also osteomyelitis of ribs.

The results, judged by the patients' own opinion and a thorough clinical assessment, were considered to be excellent in 17 cases, good in 25 cases, and satisfactory in 23 cases; the condition was unchanged in 10 cases, and worse than before operation in 4 cases; 3 patients were untraced. One case had been followed up for 14 years, 3 cases for 12 years, 7 cases for 10 years, 5 cases for 5 years, 10 cases for 1 year, and 51 cases for 6 months or less.

Nicolas Tereshchenko.