tuberculous peritonitis. In all there was a general improvement of health and increase in weight, fistulae closed, and tuberculous infiltrations disappeared. Späth (Deutsch. med. Wochenschr., 1911, No. 16) also records a case of far advanced abdominal tuberculosis with great infiltration of the pelvic cellular tissues and an intestinal fistula in which, as a last resort, exposure to the X-rays was tried; the result was surprising, for after eighteen applications the wound healed, the infiltration had disappeared, and the general condition was immensely improved. Späth also gives statistics of a combination of operation and X-ray application, as a result of which 43 per cent. of cases treated for tuberculous peritonitis were cured and 31 per cent. improved.

With regard to this form of treatment for tuberculosis of the urinary tract there seems to be little success, though Späth in the paper quoted mentions two cases of kidney tuberculosis successfully treated by another writer. With regard to pulmonary tuberculosis, also, there seems so far to be little to record in the matter of success.

Fraenkel (Berl. klin. Wochenschr., 1911, No. 17) discusses the general value, as regards tuberculosis, of applying the X-rays to the region of the ovaries; he regards this as an important measure in prophylaxis.

---

SURGERY.

By D. P. D. WILKIE, F.R.C.S.,
Assistant to the Professor of Clinical Surgery.

SURGERY OF THE THYMUS.

Until quite recent years the thymus gland had attracted comparatively little attention from surgeons. This was not unnatural, considering that its function was so obscure, its lifetime so short, and its position so secluded. The association of a persistent thymus with sudden death under anaesthesia, whilst demanding the attention of the surgeon, did not tend to attract him to this gland as a field for surgical enterprise. The work of the past few years, however, has shown that not only is the thymus readily accessible and easily removed, but also that its removal in certain conditions is followed by very gratifying results.

The experiments of Basch (Wien. klin. Wochenschr., Bd. xvi. p. 3), and especially those of Klose and Vogt (Beitr. z. klin. Chir., Bd. lxix. p. 1), have shown that the thymus is essential to the life and development of young animals, and that if it be removed sufficiently early (tenth day of life) a very definite cycle of changes supervenes, which culminates in the death of the animal. For the first two to four weeks after removal of the gland no change is seen (latent stage), then the
animal becomes unduly fat and lethargic (adipose stage lasting till the third month), thereafter comes the stage of cachexia and idiocy, lasting from the third till the fourteenth month, the animal finally dying in a state of coma. The bones of such animals are soft and break readily, and in the same animal there may be the signs of rickets, osteomalacia, and osteoporosis.

Complete removal of the thymus in a child is therefore inadmissible. Klose has shown that the thymus possesses extraordinary regenerative powers, and that if a fragment of it be left it will grow to practically the normal size of the gland. Undue enlargement of the thymus in young infants may give rise to numerous pressure effects, of which tracheal compression causing stridor is the most frequent. Hochsinger (Wien. klin. Wochenschr., Nos. 45-47, 1903) by X-ray examination has definitely shown that in most cases of congenital stridor the thymus is unduly large, and Jackson (Journ. of Amer. Med. Assoc., 1907, No. 21) by bronchoscopic examination has demonstrated the flattening out of the trachea by an enlarged thymus. Rehn (Arch. f. klin. Chir., Bd. lxxx), in 1896, was the first to operate on the thymus in a case of congenital stridor. Olivier (Arch. gén. de Chir., Feb. 1912) has collected the records of 42 cases of thymectomy for this condition, and he considers that surgical interference should be the routine treatment for such cases.

The operations performed for hypertrophied thymus are three in number—(1) exothymopexy; (2) resection of the manubrium sterni; (3) thymectomy.

In exothymopexy the thymus is pulled up through an incision in the suprasternal region and fixed by sutures to the sterno-mastoid muscles, so that it lies in the lower part of the neck. This operation sometimes fails to give relief, and has little to recommend it. Resection of the manubrium sterni, with or without removal of a portion of thymus, has been uniformly unsuccessful. The operation which has been attended by most success is that of subcapsular thymectomy through a suprasternal incision. Veau (Presse méd., 1910, No. 29) has clearly shown that such a thymectomy is always subtotal, and that in a human being a complete thymectomy through a suprasternal incision is impossible. The capsule of the thymus is formed of deep fascia which has such extensive connections with and relations to important structures as to make an extra-capsular thymectomy impossible. The thymus is separated from its capsule by loose fibrous tissue, and can be very readily shelled out; indeed if the capsule be incised the gland will sometimes be delivered into the wound by the respiratory movements alone.

Subcapsular Thymectomy.—A vertical incision is made in the suprasternal region, extending for three-quarters of an inch down over the front of the manubrium; the deep fascia is incised and the depressor muscles
of the hyoid retracted to either side. Another layer of deep fascia now presents, and must be divided. When this is done the space in front of the trachea is exposed, and the thymus, enclosed in its fascial capsule, is seen moving up and down with respiration. Its upper pole is caught up by forceps and the capsule incised, when the gland itself is projected through the opening with each inspiration. The left lobe is first pulled up, a catgut ligature applied to its pedicle, and the lobe removed; the right lobe may then be similarly excised. The wound in the neck should be closed without drainage. Olivier advocates general anaesthesia for this operation, and believes that chloroform, if administered with care, is the best anaesthetic for these cases. All writers remark on the simplicity of this operation, and the short time required for its performance, fifteen minutes being usually sufficient. Olivier has collected from the literature forty-two cases of thymectomy in young children, with twenty-seven recoveries and fifteen deaths. Of the fifteen fatal cases only two were straightforward cases of subcapsular thymectomy. In the other fatal cases either a resection of the sternum had been carried out, or a tracheotomy performed with consecutive infection of the mediastinal wound, or there was concomitant enlargement of the mediastinal lymphatic glands. In the cases which survived operation the results were most satisfactory, and in 70 per cent. the dyspnoea from which the infants previously suffered disappeared altogether. The most striking results were obtained in the cases in which there had been in addition to dyspnoea repeated crises of suffocation, an immediate and lasting cure being obtained in 80 per cent. of these cases.

Apart from respiratory troubles children with hypertrophy of the thymus gland suffer from symptoms of a general intoxication—status thymicus—and for this condition thymectomy may be indicated. Tisserand records the case of twins, one a bright, healthy child, the other pale, fat, and flabby, with dull eyes and no vivacity. A hypertrophied thymus was diagnosed and thymectomy performed. Five months later the child was quite transformed, being bright and intelligent and in excellent physical condition. Veau has recorded similar cases.

**Thymectomy for Exophthalmic Goitre.**—Svehla has shown that an extract of the thymus gland has the same influence on the heart as has that of the thyroid gland, namely, an acceleration of the pulse and a lowering of blood-pressure. Capelle (*Beitr. z. klin. Chir.*, Bd. 72), from a large series of post-mortems on cases of exophthalmic goitre, found that the thymus was persistent and hypertrophied in a large proportion of cases. Of those cases of Graves' disease which had died from the disease itself the thymus was enlarged in 82 per cent., whilst of cases which had died from heart failure after thyroidectomy 95 per cent. had hypertrophy of the thymus. Hart has shown that it is just in the most severe cases of exophthalmic goitre, with pronounced cardio-
vascular symptoms, that thymic enlargement is found. By transplanting the thymus from cases of thymic death into the abdomen of dogs Bircher (Centralbl. f. Chir., No. 70, 1912) has succeeded in producing typical exophthalmic goitre in these animals. Acting on these data Garré, in a case of exophthalmic goitre with cardiac disturbance, performed the operation of thymectomy and left the thyroid alone. The result was extremely satisfactory, in that the patient’s general condition immediately improved, the pulse-rate gradually fell from 140 to 100, and the blood picture returned to normal; the goitre and the exophthalmos, however, remained as before. These facts serve to show that in exophthalmic goitre both thyroid and thymus glands may be at fault, and they would appear to indicate a further development in the surgical treatment of that disease.

**Sporotrichosis of Bone.**

Lesieur and Marchand (Lyon Chir., February 1912) record a case of sporotrichotic infection of the tibia, and give notes of the two previously recorded cases of this disease in bone. In all three cases the subjects were old people of 71, 60, and 80 years respectively. The bones affected were the tibia in two cases and the radius in the third. The disease appeared to be primary in the bone, the infection being blood-borne, the organism having gained access probably from the mouth. In two of the cases the disease was associated with fracture, but in neither case could it be determined clearly whether the fracture was of the pathological type or whether the disease settled down secondarily at the site of fracture.

The differential diagnosis from tubercle and syphilis of bone is very difficult, and can only be decided by making cultures. In one case there was a hypertrophic osteitis of the bone, in the second a definite destructive osteomyelitis, and in the third a localised intraosseous abscess. Treatment with potassium iodide was followed by immediate improvement in all three cases.

**Surgical Treatment for Paralysis Agitans.**

Leriche (Lyon Chir., March 1912) records a case of advanced paralysis agitans in which section of several posterior nerve roots was followed by gratifying results. In this disease besides the tremor there is always considerable rigidity of the muscles, and the patients frequently complain of an incessant feeling of irritation in the affected parts. Leriche believes that the hypertonicity of the muscles is the result of these constant centripetal impulses, and that therefore section of the corresponding nerve roots, as advocated by Foerster, should lessen the muscular rigidity.
Recent Literature

In a patient, aged 57, who had suffered for many years from this malady he divided the sixth and seventh cervical nerve roots on the right side and the sixth root on the left side. The patient pronounced himself greatly benefited by the operation; the pains in the arms which had formerly been his chief complaint disappeared, the tremor was considerably lessened, but the muscular rigidity was not greatly influenced. Leriche proposes in this case to divide the second, third, and fifth lumbar roots on each side, and in addition to perform neurectomy of several intercostal nerves, abdominal pains being a feature in the case.

DISEASES OF CHILDREN.

By CHARLES M'NEIL, M.A., M.D., M.R.C.P.,
Extra Physician, Royal Edinburgh Hospital for Sick Children.

The question of latent tuberculosis in childhood and its recrudescence into more active and clinically recognisable forms is discussed by Sluka (Wien. klin. Wochenschr., 1912, 259) from several points of view, but especially from that of diagnosis at an early stage in the process of reactivation. He deals exclusively with lung tuberculosis, which is the prevailing type in Vienna, both in children and adults, while abdominal tuberculosis is relatively uncommon. He sketches as follows the pathogenesis of the common clinical type: The primary infection is somewhere in the tissue of the lung, and is carried there by the air-passages. This primary focus may become progressive, as commonly happens in infants, and then disseminates a general and rapidly fatal tuberculosis; or it may become retrogressive, as frequently is the case in older children, and in this event forms a caseous area of healed tubercle. In the latter group the sequence of events is followed further. This primary healed or retrogressive focus has nearly always infected the neighbouring lymphatic glands at the pulmonary root; these glands play the decisive rôle in subsequent events, for they form a barrier to the further spread of the tuberculous process which is often a complete and permanent one, but which again may be ineffective and allow a second infection of the lung now on a larger scale.

It is necessary to remember that this picture of events, while true for Vienna, may not be applicable elsewhere; but in Vienna it is securely based on two sets of statistical investigation—on post-mortem findings in a large number of children dying from all causes, where the extraordinary frequency of pulmonary tuberculous lesions of this character was shown, and on large masses of clinical data, accumulated by Hamburger, v. Pirquet, and others, showing that 90 per cent. of poor children in Vienna from ten years upwards, while clinically non-