Progress.—Rectal salines and glucose (2 per cent.) were given four-hourly, and on the following day the condition of the boy had improved; temperature 99.4° F., pulse 80–100. On the afternoon of May 27th, about thirty-six hours after operation, he was uncomfortable and restless, and became rapidly worse towards evening. Vomiting recommenced, the abdomen became distended, and no flatus was passed. Enemata were ineffectual. The pulse rate rose to 130; the extremities were cold. It was obvious that a paralytic ileus was present. At 6.45 p.m. 10 c.cm. of anti-gas-gangrene serum "W." (Wellcome) was given intramuscularly. An hour later a little flatus had been passed and the patient was more comfortable. At 9 p.m. 10 c.cm. of serum was given. Shortly afterwards flatus was passed freely and he was much relieved. The vomiting ceased, and during the night he had some natural sleep. The next day the temperature was 99° F., pulse 100. At 10.45 a.m. he was given 12.5 c.cm. of serum. Soon afterwards the bowels moved freely, the motions being dark and extremely offensive. At 6.30 p.m. he was given another 12.5 c.cm. of serum. During the next few days the bowels continued to act four to six times in the twenty-four hours. On June 6th a dose of castor oil was given and the motions became normal.

The general condition improved steadily, although the temperature rose each night to 99° or 100° F. The chest was examined on several occasions without detecting any abnormality. On June 16th he suddenly had a sharp spell of coughing and the respirations rose to 36. A small area of dullness was discovered at the base of the left lung. As the boy was comparatively well and had little discomfort it was decided to wait in order to allow the abscess to localize. However, on June 20th he coughed up several ounces of pure pus. The physical signs in the chest cleared, the temperature and pulse dropped to normal, and he made good progress towards recovery.

On July 15th the temperature again rose, and it was evident that a large collection of pus was forming in the left chest. It was noticeable that there was no cough, and although the temperature gradually rose to 103° F., he had practically no discomfort. On July 20th, under general anaesthesia (gas and oxygen), a portion of the ninth rib was resected in the posterior axillary line, the cavity cleansed, and drainage instituted by

the "closed" method. Drainage of typical pneumococcal pus continued for some days. At the end of a week the discharge had practically ceased; the wound was dressed for the first time and the sutures and tube were removed. Healing took place rapidly and without complication.

The patient subsequently made an uninterrupted recovery.

Summary.

The points of interest in this case may be summarized as follows:

1. At the outset the history did not suggest a pneumococcal peritonitis. There was no rigor at the commencement of the acute illness, no diarrhoea occurred, neither was there any herpes labialis. Exact pre-operative diagnosis was not possible.

2. As no demonstrable path of infection existed, the condition appeared to be an "idiopathic" type of the disease, although Fraser³ makes it clear that primary pneumococcal peritonitis can only occur in the female. In the light of the subsequent history, however, the condition must be regarded as a septicaemia with a small concealed focus in the lung as the primary focus. Barrington-Ward⁴ describes a case of pneumococcal peritonitis where a very small hidden empyema, unsuspected during life, was discovered post mortem.

3. Although the peritonitis was diffuse, it was clearly seen at operation that the infection was most intense in the ileo-caecal region.

4. The administration of anti-gas-gangrene serum in its concentrated form proved beneficial when the establishment of a paralytic ileus had rendered the condition apparently hopeless.

REFERENCES.

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- ² Molesworth: *British Medical Journal*, August 24, 1929, p. 344.
- ³ Fraser: *Surgery of Childhood*, vol. 2, p. 803.
- ⁴ Barrington-Ward: *Abdominal Surgery of Children*, p. 63.

GRADENIGO'S SYNDROME FOLLOWED BY COMPLETE RECOVERY.

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GRADENIGO'S syndrome has attracted a considerable amount of attention in recent years, and the following details of a rather unusual case may therefore be worthy of record.

A public school boy, aged 16, had an acute attack of otitis media on March 13th. There was a history of discharge from the right ear for a short period, after influenza five years previously. The present attack was preceded by a post-nasal infection on March 9th.

The ear was discharging freely when it was first seen. The temperature persisted in the neighbourhood of 99° F. until March 28th, when it rose to 101° F. There was slight tenderness over the mastoid region, and a Schwartz operation was performed on that day; this revealed a very cellular mastoid, with an extensive cell system passing backward behind the lateral sinus and necessitating a backward continuation of the incision. There was also an infected cell system, which dipped deeply into the back of the petrous bone in front of the sinus. These cell systems were opened up and the whole tip of the mastoid was removed. All the cells contained pus, from which a short-chain non-haemolytic streptococcus was recovered.

Although the wound appeared perfectly healthy and the discharge rapidly became mucoid, the boy continued to have a temperature around 99° F. No cause for this pyrexia could be found in the ear, chest, or elsewhere. Immediately before the operation and for a fortnight afterwards he complained of pain, neuralgic in character, above and below the right eye. There was no headache.

On April 9th he complained of a fleeting diplopia, and on the following day there was obvious weakness of the external rectus of the right eye; by April 13th paralysis was complete. There was no further neuralgia after this date. The temperature became normal on April 17th, and remained so.

He was discharged home on May 2nd with the mastoid wound healed and the membrana tympani intact. He could then easily hear a 32 double vibrations fork. Some recovery of the external rectus of the right eye was just detectable.

On May 13th he was examined for the diplopia, and it was found that he had an internal squint with almost complete

paralysis of the right external rectus and uncrossed diplopia, most marked on looking to the right. There was hardly any vertical displacement of the images. Vision was 6/6 in both eyes, with a +2 cylinder (95 degrees) in the right and a +2.25 cylinder (90 degrees) in the left. In other words, after correction of the hypermetropic astigmatism present, he had full vision with each eye. The fundi and media were normal. The father stated that the eye was "not so much in the corner as it was at first." On looking directly ahead at a small light placed at 6 metres distance, with a Maddox rod before the defective eye, there was between 30 and 40 degrees of measurable esophoria. He could not obtain any fusion of the two images.

Paralysed eye muscles differ from those in other situations in that the defective muscle cannot be kept at rest. The eye muscle is kept constantly but partially moving, even if the eye is covered, by the conjugate movements of the two eyes. This very considerably aids its recovery if the nerve is not permanently destroyed, especially in a situation where massage and faradism cannot be applied. This boy was treated by an expert masseuse twice a week, between May 21st and July 2nd, with ionization with the continuous galvanic current for five to seven minutes; the pads were soaked in saline, and applied, one between the second and fourth cervical vertebrae and the other directly over the outer conjunctiva, which had been previously anaesthetized by 1 per cent. cocaine solution. The patient tolerated this treatment quite well, and it was followed by interrupted galvanism in the hope of stimulating the external rectus muscle fibres. He wore a shade to free him from the disabling diplopia.

His progress was as follows.

May 27th: Hardly any visible squint; 18 degrees of esophoria; single vision with prism, but not without it.

June 11th: There was 12 degrees of esophoria. The first thing in the morning the patient did not have double vision, but it came on by breakfast time. It was decided to try to abandon the shade in the earlier part of the day.

June 24th: The esophoria was now only 3 degrees, and the patient left off his shade. Fusion was obtained without any prism.

July 8th: No measurable esophoria was detectable, and there was good binocular vision. The abducent nerve, therefore, took about three months to recover.

We publish this case chiefly for the interest of the complete report of the recovery, which in such cases has not always been fully recorded. It is also noteworthy that the syndrome was associated with an exceptionally cellular mastoid. The syndrome is not of the complete Gradenigo type in that the boy at no stage suffered from headache.