**A CASE OF LEFT DUODENAL HERNIA IN
A CHILD.**By **FREDERICK C. PYBUS, M.S., F.R.C.S.,**SURGEON TO THE HOSPITAL FOR SICK CHILDREN,
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CASES of duodenal hernia are sufficiently rare to warrant the publication of individual examples. Some idea of their frequency can be gained from Barnard's¹ figures. Out of the 669 cases of intestinal obstruction occurring during thirteen years at the London Hospital, 13 were due to internal herniae, and of these 2 were the result of hernia into the duodenal fossae.

The fossa into which this hernia occurred corresponds to the paraduodenal, as described originally by Landzert. Of the peritoneal fossae in this region, Moynihan² insists that the paraduodenal is the only one capable of forming a hernial sac. There is still considerable confusion in the nomenclature of these fossae, and this type of hernia is frequently alluded to as the duodeno-jejunal.

The paraduodenal fossa lies to the left side of the spine, and to the left side of the ascending part of the third portion of the duodenum, which forms the inner border of its orifice. The remainder of the orifice is bounded above, below, and on the outer side by a fold of peritoneum containing the inferior mesenteric vein. The left colic artery lies in the peritoneum of the anterior wall. The sac extends towards the left, and lies behind the descending mesocolon.

The anatomy of the sac in the case described below corresponds exactly with this description. So far as I have been able to gather from a perusal of the cases it is the first in which a portion of the large intestine formed part of the contents of the sac.

The patient had been ill five days when I saw him, and being the child of poor parents attempts had been made to get him admitted to a general hospital, children's hospital, and fever hospital without success, either on account of these institutions being full or their having no accommodation for dealing with such a case. It is, perhaps, fortunate that the condition was not one of urgent strangulation, or the result might have been very different.

Dr. Maclean of Ashington has kindly written me a history of the case, which is as follows:

Note by Dr. Maclean.

E. T., male, aged 5 years, developed scarlet fever on December 15th, 1913. He did well until the evening of December 25th, when he complained of abdominal pain, which was then considered due to the eating of a banana. On Friday morning, December 26th, I saw him. His temperature and pulse were normal; the pain resembled colic. On abdominal examination there seemed a resistance and fullness on the left side. The bowels had not been moved for two days, and castor oil was prescribed. I had a suspicion that there might be an intussusception, and asked my locum tenens, Dr. McKenzie, to see him in the evening, and he reported him better, though the bowels had not moved. Next morning (December 27th) Dr. McKenzie again saw him, and found a definite mass in the left flank. We both examined the boy in the afternoon, and diagnosed an intussusception.

On account of the boy having scarlet fever we could not get him admitted to hospital, and tried soap and water enemas and large injections of water, without benefit.

On December 28th the temperature was normal, pulse rather rapid, sickness was stopped, no blood had been passed per rectum, and nothing abnormal could be felt per rectum, but the mass in the abdomen could be easily palpated. On December 29th Mr. Pybus operated at the boy's home, and on opening the abdomen found a large internal hernia. Peeling commenced a few days after the operation. The boy has made a splendid recovery, and is now running about the streets.

Operation by Mr. Pybus.

When I saw the patient on December 29th, 1913, there was no fever, the pulse was 104, the tongue was furred but moist, and there was a decided acetone smell in the breath. The child was peevish and restless, but when asked where the pain was the hand was passed over the epigastrium. The abdomen was slightly distended, and a mass was found on the left side. Rectal examination was negative.

Under the anaesthetic distended coils of small intestine could be seen in the right side of the abdomen. There was a rounded visible swelling on the left side of the abdomen about the size of an ostrich egg, situated to the left and chiefly below the level of the umbilicus. The lump was tense, slightly movable, and resonant on percussion. The left loin was free of any swelling.

I opened the abdomen in the middle line below the umbilicus. Some clear fluid escaped from the peritoneum. The first

noticeable point was the small amount of small intestine present; this was limited to the right side of the abdomen and pelvis. The intestine itself was congested and slightly distended. On drawing the intestine aside the mass was seen covered by peritoneum, in which could be seen the left colic artery. The swelling appeared to contain intestine. No collapsed intestine could be found, so a coil of small intestine was traced upwards and the appendix was seen projecting from the mouth of a retroperitoneal sac. By means of traction on this part combined with pressure on the sac the contents were reduced with ease; they were congested but not damaged. The reduced intestine consisted of the caecum, part of the ascending colon and a considerable amount of small intestine, probably most of the ileum. The caecum, ascending colon, and termination of the ileum had a long mesentery.

The orifice of the sac was situated to the left side of the duodeno-jejunal flexure, and this intestine formed its inner margin. It was bounded elsewhere by a fold of peritoneum, which was thick at its free edge. Although the contents of this edge could not be definitely seen, the inferior mesenteric vein could be traced up to it. The orifice was oval in shape, the longer diameter being 2 in. and in the vertical direction; the transverse diameter was about 1½ in. Three fingers could be inserted into the aperture, which looked towards the right side. The sac was limited to the left side of the spine, and extended outwards towards the descending colon, upwards to the kidney, and downwards, in a longer direction, to the left iliac fossa, the left colic vessels being seen in its anterior wall.

In order to prevent recurrence I thought of attempting to drag out the sac and remove it, but as this might have proved a long undertaking I obliterated the orifice by suturing the free edge to the side of the duodenum by interrupted catgut sutures. Some saline was introduced into the peritoneum, and the abdomen closed.

The scarlet fever seemed to have no ill effect on the course of the recovery. The anatomical details were investigated as far as possible, and I noted the absence of at least the superior and inferior duodenal fossae at the side of the duodenum. The large size of the orifice accounted for the absence of any strangulation, although there was complete obstruction, brought about possibly by the terminal entrance of the caecum and ascending colon. There was no sharp colic accompanied by crying and curling up, such as is frequently seen in children suffering from intestinal obstruction. A diagnosis of duodenal hernia was not made before operation, although on exploration the condition was immediately recognized. The absence of blood or mucus contraindicated intussusception, and our diagnosis was intestinal obstruction, due to adhesions over a tuberculous focus covered by resonant intestine.

REFERENCES.

- ¹ Barnard, *Contributions to Abdominal Surgery*, London, 1910.
² Moynihan, *Retroperitoneal Hernia*, London, 1899.

**REDUCTION OF OLD ELBOW DISLOCATION
BY OPERATION.**By **FRED. D. BIRD, M.S., Hon. F.R.C.S.,**
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It is seldom that a dislocated elbow is left unreduced long enough to negative reduction by manual means. When, however, operation is necessary, the following measures which I practised recently on a dislocation three months old seem to me adequate to produce a good result.

A rounded flap is turned down, as in the operation for suturing or plating an ordinary fractured olecranon, which fracture is then achieved by the very large cutting forceps used by veterinary surgeons to split down a horse's molar tooth, previous to extracting it in two parts. Care is taken that the bite of the forceps does not invade the integrity of the shaft of the ulna; the section, which with this very powerful forceps is a clean one, is made a very little above the junction of the olecranon with the shaft. Some freeing of the lateral tissues allows of the turning up of the olecranon process. The joint is not seen now, as it would be in a recent fracture, because there is a large amount of adventitious tissue in the enlarged joint area. This material is very dense—dense enough to throw a not unimportant shadow on the skiagram, as I have several times observed, and requires cutting with a knife for its removal, after which the back part of the trochlear surface of the humerus can be seen. The large lever devised by Lane for use in plating the thigh bone is now inserted with its point beneath the trochlea. This, with manipulation of the forearm, exercises leverage sufficient to replace

the end of the humerus in its normal position as regards the forearm bones, flexion and extension being impressed on the joint to see that everything is free. Before reduction is accomplished a slight use of the knife or scissors on the lateral tissues may be requisite. When it is accomplished, the olecranon fragment is turned down into position and secured there by a wire or plate; if by the former a drill-hole has been made in it before section of the bone. Several sutures are used in the lateral expansions of the triceps tendon, the skin edges incised and coapted.

In four days a single passive motion of flexion and extension is made and again at the end of the week; a splint is necessary only if there be much pain after the operation.

The result in the case mentioned, that of a healthy middle-aged woman admitted under my care at the Melbourne Hospital, though not perfect was excellent. The disability beforehand was very great and no traction had any effect upon the position of the bones. It was only at operation that one could realize what a solid mass preventing replacement the new tissue provided. The maxim learnt was that traction could only do harm and had no chance of consummating reduction.

NAPHTHALENE FOR THE DESTRUCTION OF MOSQUITOS IN COVERED CISTERNS AND WELLS.

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WHILE the following experiments are admittedly of a slight and tentative character, the results appear of sufficient general interest and importance to warrant their publication, in the hope that workers abroad, where experiments on a practical scale are possible, may be induced to try naphthalene as a deterrent to the breeding of mosquitos. For any exposed water surface oil as at present used would certainly be more effective, but in such windless situations as wells and covered cisterns naphthalene has an obvious advantage owing to its slow evaporation and the fact that the vapour is fatal to the adults, which are apt to seek cover in such situations.

Flake naphthalene sprinkled on the water surface as used in these experiments imparts a slight flavour to the water; but if no contact takes place, and it is suspended above the water surface, this defect is obviated. Lack of opportunity to continue the experiments has prevented my thoroughly testing its effectiveness as a larvicide when used under these conditions, but I am of opinion that further experiments would yield a satisfactory method for its application.

The experiments with the adult insects, while they certainly point to the prevention of any breeding in closed cisterns, also afford hope that such species as *Stegomyia fasciata* might be prevented from taking up their quarters in the quiet nooks and corners within doors that they are stated to seek out for tenancy.

Experiments with Adult *Culex pipiens*.

Method.—Half-pint waxed-card cream jars of 330 c.cm. capacity were prepared by placing discs of wet blotting paper at the bottom; on this the flake naphthalene was scattered; the mosquitos were introduced and the jars, covered with mosquito netting, placed on the laboratory bench. The temperature during the trials was about 63° to 66° F.

No. 1.—Ten adult *Culex pipiens* put into each of two jars prepared as above; in one 1 gram of naphthalene was scattered (1 in 330).

Control:

1½ hrs. ...	...	...	...	All living.
9 hrs. ...	...	...	...	All living.
20 hrs. ...	...	...	...	All living.
68 hrs. ...	...	...	...	2 dead.

Test Jar:

1½ hrs. ...	...	...	...	8 dead or stupefied.
5 hrs. ...	...	...	...	9
20 hrs. ...	...	...	...	All dead or stupefied.

No. 2.—In the second test difficulty was experienced in getting equal numbers into each jar, and tests were made with 0.5 gram, 0.2 gram, 0.1 gram.

	Control.	Using 0.5 gram = 1 in 660.	Using 0.2 gram = 1 in 1,650.	Using 0.1 gram = 1 in 3,300.
2 hrs. ...	All living	3 down; 4 living	All living.	All living
3 hrs. ...	All living	4 down; 3 living	All living	1 dead
17 hrs. ...	All living	All dead	All dead or dying	All dead or dying
42 hrs. ...	All living	—	—	—
66 hrs. ...	1 dead; 6 living	—	—	—

No. 3.

	Control.	Using 0.05 gram = 1 in 6,600.	Using 0.02 gram = 1 in 16,500.	Using 0.01 gram = 1 in 33,000.
18 hrs. ...	All living	All dead	All down; 3 capable of feeble movement	1 dead; 3 down, but capable of feeble movement
43 hrs. ...	All living	—	—	—
63 hrs. ...	All living	—	—	—

Experiments with Larvae.

Method.—Into each of two square-bottomed troughs, having a surface area of 72½ in. (462 cm.), 4 litres of strained rain water was poured.

1. 100 active larvae (86 in penultimate and 14 in final larval instar) were then added.

On the surface of one 1 gram of flake naphthalene was added (1 in 462 surface area). Both troughs were covered with mosquito netting stretching over a wooden frame that raised the walls of the receptacles to 6 in. above the water surface. Both troughs were then placed on the laboratory bench close to the window. Temperature from 65° to 67° F. Within twenty-four hours all the larvae were dead in the trough which had the naphthalene scattered in it. **Result, all killed.** None were dead in the control trough, and the larvae developed satisfactorily.

2. The experiment was repeated with 90 small and 10 large larvae in each jar, only 0.5 gram of naphthalene being used—1 in 924 surface area. Temperature 60° F. After twenty-four hours only a few of the large larvae remained active. After twenty-seven hours all were dead in the test trough. **Result, all killed.** The larvae in the control were all living and most of them developed to the pupa stage.

3. The experiment was again repeated with 16 large and 84 small larvae in each trough, only 0.2 gram of naphthalene being used—1 in 310 surface area. Temperature 60° to 65° F. After twenty hours a large number had ceased to move in the test trough, but a few survived after seventy-two hours, when the naphthalene had all evaporated. **Result, all the small and some of the large larvae killed—10 or 12 per cent. survived.**

Pure naphthalene can be obtained from wholesale chemists for 3d. per lb. for quantities of 14 lb. or over. In bulk it may be obtained direct from the gas companies.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

THE ETIOLOGY OF TYPHUS FEVER.

(Preliminary Note.)

We wish briefly to record the results of our examination of the blood and urine in 25 cases of typhus fever during a recent outbreak in Belfast, as well as of the cerebro-spinal fluid.

The urines, many of which were catheter specimens collected by a special method to exclude air contamination, were examined when fresh, and also after incubation for twelve hours. In all of them we found before the crisis a minute organism which we believe has not yet been described. It was also found in the lysed deposit of the fresh blood taken by venupuncture before the crisis, in the cerebro-spinal fluid, and again in the fresh urine of five bonnet monkeys in whom after the lapse of a well-marked incubation period we had induced a continued fever by inoculation of human typhus blood collected before the crisis. It disappeared from the urine of the injected monkeys after their fever had subsided.

The organism in question appears to be pleomorphic, being coccobacillary in form, and we shall in future refer to it as a coccobacillus. In fresh specimens it varies between 0.25 μ and 0.6 μ in its greatest diameter, and in its smaller forms passes through carefully tested Berkefeld filters. It is both Gram-positive and Gram-negative in the