A plain radiograph of the lung fields showed a triangular shadow extending to the right of the right border of the sternum from above the level of the aortic knuckle to the convexity of the right dome of the diaphragm. A barium swallow revealed a grossly enlarged oesophagus (see Fig.). The shape of the lower end of the organ

could be seen only in an oblique view. The oesophagus was grossly elongated so that it was obliged to kink, the kink resting on the right cupola of the diaphragm. The terminal portion of the tube narrowed gradually to pass to the cardia by a fairly narrow channel which appeared to offer considerable resistance to the passage of barium. Three-quarters of a cupful of barium emulsion passed into the stomach within 30 minutes, and peristaltic waves were observed emptying emulsion from the oesophagus into the stomach. In an hour a trace of barium remained in the lower end of the oesophagus.

The radiological appearances did not alter over a period of 15 months, and now, two years after the condition was diagnosed, the patient is symptom-free. A barium follow-through showed no abnormality of the stomach or colon (cf. Etzel, 1937).

Discussion

Cases of dilated oesophagus described in the literature have usually been associated with achalasia of the cardia, a condition thought by Hurst (Hurst, 1914-15; Hurst and Rake, 1929-30), and also Rolleston (1896), to be due to an upset in the neuromuscular mechanism in the region of the cardia. Hurst visualized food being propelled down the oesophagus to be held up at the cardia, which did not relax. In consequence the oesophagus dilated to accommodate the food, and in time this resulted in a permanent dilatation of the organ. There was no question of paralytic dilatation, because violent, frequent, and ineffectual peristaltic movements were observed in the oesophagus.

All cases of achalasia of the cardia which have been examined histologically have shown inflammatory changes and fibrosis affecting the ganglion cells of Auerbach's plexus (Rake, 1927; and others). Many cases of achalasia are on record in which no histological examinations have been reported; but they are all cases which showed symptoms of obstruction, and there is no good reason to separate them from the above group.

It has been assumed hitherto that dilatation of the oesophagus in these cases was a consequence of the functional defect at the cardia, supporting evidence being some diminution in size following surgical relief of the functional obstruction. There is no record of an oesophagus normal in size before the onset of symptoms. This point is important because of the present case.

Apart from those cases with marked symptoms in which the diagnosis seemed probable on clinical examination alone, cases have been described with slight symptoms of obstruction but with well-marked radiographic changes (Shelburne, 1934; Belot and Nahan, 1936; Becquet, 1938); and a similar condition in children may be associated with considerable oesophageal dilatation (Rolleston, 1896; Cameron, 1927; Negus, 1936). Besides, there appears to be no direct relationship between the degree

of obstruction and the extent of oesophageal dilatation (Brown Kelly, 1912), and oesophageal stenosis due to a neoplasm or fibrous stricture may not be associated with gross dilatation.

In the case here described there is delay in the emptying of the oesophagus, but some barium entered the stomach very rapidly and each peristaltic wave was associated with the passage of barium. The degree of achalasia, if any exists, must be minimal; more probably the delay should be attributed to the tortuous course followed by the oesophagus.

In the absence of histological material for study it is difficult to assign this case to a definite group, but it differs from what has been described as achalasia of the cardia, in the absence of symptoms, the absence of any evidence of spasm, and the abnormal shape and length of the oesophagus. It is difficult to make a reasonable suggestion as to its cause unless the issue be evaded by ascribing it to a "congenital defect." Experimental evidence which might have a bearing on the aetiology of this condition is meagre, but the following observations should be mentioned:

(a) McCarrison (1919) has described the effects of chronic hypovitaminosis-B on pigeons. The changes in Auerbach's plexus resemble those found in achalasia. The state of vitamin-B saturation of this patient has not been determined, but he exhibited no signs of vitamin-B lack.

(b) Experimentally, in animals, bilateral vagotomy led only to a transitory absence of peristalsis (and hence delayed emptying) in the oesophagus (Cannon, 1906-7), but when the longitudinal muscle coat was stripped from the subdiaphragmatic portion enlargement of the oesophagus resulted (cf. Netto and Etzel, 1934). The latter operation always resulted in the simultaneous removal of Auerbach's plexus, thus providing some direct evidence that enlargement of the oesophagus can follow damage to this plexus.

The cause of the oesophageal enlargement in this case is therefore obscure; there is no direct evidence as to its aetiology, but a congenital defect of the longitudinal muscle fibres is possible.

I am indebted to Prof. R. V. Christie for permission to publish this case, and for his helpful criticisms of this paper.

REFERENCES

- Becquet, R. (1938). *Arch. Mal. App. digest.*, **28**, 388.
 Belot, J., and Nahan, L. (1936). *Presse med.*, **44**, 1023.
 Cameron, J. A. M. (1927). *Arch. Dis. Child.*, **2**, 358.
 Cannon, W. B. (1906-7). *Amer. J. Physiol.*, **17**, 429.
 Etzel, E. (1937). *Guy's Hosp. Rep.*, **87**, 158.
 Hurst, A. F. (1914-15). *Quart. J. Med.*, **8**, 300.
 — and Rake, G. W. (1929-30). *Ibid.*, **23**, 491.
 Kelly, A. Brown (1912). *British Medical Journal*, **2**, 1047.
 McCarrison, R. (1919). *Indian J. med. Res.*, **7**, 167.
 Negus, V. E. (1936). *J. Laryng. Otol.*, **51**, 100.
 Netto, A. C., and Etzel, E. (1934). *Rev. sud-am. Med. Chir.*, **5**, 395.
 Rake, G. W. (1927). *Guy's Hosp. Rep.*, **77**, 141.
 Rolleston, H. D. (1896). *Trans. path. Soc.*, **47**, 37.
 Shelburne, S. A. (1934). *J. Amer. med. Ass.*, **102**, 285.

Medical Memoranda

Alternative Method of Treatment for Late Cases of Strangulated Femoral Hernia

Owing to the very high mortality associated with late cases of strangulated femoral hernia it is of interest to describe an alternative treatment which has proved successful. While not in any way decrying the standard treatment, there are no doubt many late cases to which the technique to be described could be applied. These patients are very dehydrated and exhausted; therefore it is essential to keep to the minimum the amount of manipulation at any one time.

CASE RECORD

Mrs. A., aged 69, was admitted to hospital with a 5-day history of abdominal pain, vomiting, and increasing distension. Just before the onset of her symptoms a lump had appeared in the right groin, following a strain. On examination the patient looked very ill; temperature 99.8° F., pulse 110. Her face was ashen and appeared sunken, her tongue was dry and furred, and she was obviously very dehydrated. She complained greatly of thirst, and her mind seemed to be rather confused. There had been no action of the bowels for seven days. Examination of the abdomen revealed marked distension, with a large red tender swelling in the right groin, no doubt containing sloughing bowel and pus. Intravenous saline was begun immediately and the patient brought to the operating theatre. Under pentothal anaesthesia a small median subumbilical incision was

made, and the loop proximal to the strangulation identified. This was brought outside the abdomen on the left side, at its nearest point to the strangulation but without any undue tension. No further manipulation was carried out, and the abdomen was closed. A Paul's tube was inserted into this loop, which was about the middle of the small intestine; it will be noted that the ileostomy was performed on the side opposite to the strangulation in order to leave room for a later operation near the site of obstruction. Furthermore, the loop of ileum was brought entirely outside the abdomen in order to ensure complete drainage: an ordinary ileostomy, with a catheter, would probably not have sufficed.

Intravenous saline was continued, and five days after the ileostomy the patient was again brought to the theatre. Under spinal anaesthesia (light percaine) an oblique incision was made over the right iliac fossa, and the proximal and distal loops of the hernia were identified. These were clamped some three inches from the point of strangulation, divided, and an end-to-end anastomosis performed. The loops entering the hernial sac were closed off and oversewn. No great amount of manipulation was carried out, as the incision was immediately over the site of the anastomosis, and, furthermore, it was unnecessary to divide the respective mesenteries; the ends of the gut were just apposed to each other and anastomosed. At the conclusion of the operation the wound was sealed off by elastoplast, and attention was then turned to the mass in the groin. There was now a large fluctuant abscess with a patch of gangrenous skin. The latter was cut into with scissors, and the pus allowed to drain away. No gross intervention was carried out in this wound for fear of increasing the toxæmia. Intravenous saline was continued, and three days later the patient again returned to the theatre for closure of the ileostomy. Her general condition had greatly improved and she was well enough for a general anaesthetic. This operation entailed a further end-to-end anastomosis, as it will be remembered that a loop of ileum had been brought completely outside the abdomen in order to ensure better drainage. Saline drip was maintained for a further five days, making thirteen days in all; fluids by mouth had been allowed while the ileostomy was functioning, but these were stopped for two days after its closure. The patient improved rapidly, but the wound in the groin continued to discharge offensive sloughs for several weeks. Eventually this wound healed completely, even though a permanent sinus was anticipated from the lumina of the isolated piece of small bowel. The wound where the ileostomy had been closed broke down some days after the operation, and a fistula was established. This drained for about three weeks, and then healed spontaneously. The patient was discharged eleven weeks after the date of admission; she was very fit, and able to eat anything. All her wounds were well healed. It is now nine months since her discharge, and she is still in good health.

COMMENT

This case is of interest not because it describes a better method of treatment for late cases of strangulated hernia, but because this method is one that could probably be more often applied in certain cases. Though it entails three operations, none of them was in any way drastic or prolonged—in fact, there was only the very minimum amount of interference. It is a moot point whether this patient would have survived had the usual orthodox treatment been adopted.

My thanks are due to Mr. G. T. Mullally for his helpful advice during the treatment of this case.

D. K. MULVANY, F.R.C.S.Eng., F.R.C.P.I.,
Temporary Honorary Assistant Surgeon,
Hospital of St. John and St. Elizabeth.

Abortion in *Brucella Abortus* Fever

The incidence of brucellosis in man is to a large extent an unknown factor because of the similarity of mild infections to the influenza group and the consequent infrequency of differential diagnosis; but in cattle the well-known, widespread, and to a large extent untreated abortion from brucellosis makes this disease an important feature of wartime dairy-farming and stock-breeding.

In temperate climates human brucellosis is predominantly a disease of the younger adult male, and the characteristics of the disease in the female, and especially in the pregnant female, are not generally familiar. In America, Huddleson (1939) states that "there is no tendency to abortion in ordinary cases of brucellosis," though, since de Forest in 1917, many cases have been noted (some with fatal termination); and Harris (1941) writes that "the subject of abortion in women due to *Br. abortus* infection has received much less attention than is its due." In this country references are scanty. Topley and Wilson (1936) write: "Infection during pregnancy is sometimes, but not often, followed by abortion. The organism may be isolated from the placenta and uterus of the mother, and from the stomach contents of the foetus."

In this connexion it may be of interest to record the case below, not as a proved case of brucellosis abortion, but in the hope that brucellosis may be more often considered as a cause of ill-health in general and as a possible cause of abortion in particular. In the last 8 years, in this dormitory town of 15,000 inhabitants, there have been 12 established cases of

brucellosis—all of them serious ones. Mild and unrecognized cases would have at least doubled this number. There seems to be little evidence that the local milk supply is better or worse than the national average. None of the cases were occupational contacts with infected cattle.

CASE REPORT

Mrs. A., a nullipara aged 31, changed her milk supply on Dec. 1, 1942. On Dec. 16, with reference to a proposed pregnancy, she was pronounced gynaecologically fit by Dr. Helena Wright. Wassermann and Kahn reactions were negative. From Jan. 14, 1943, she had a mild attack of influenza for 6 days. Her last period was on Jan. 17. On Feb. 27 she had a fever of 99.4°, with malaise, frontal and occipital headache, anorexia, and slight limb pain. On March 4, the fever and condition remaining unchanged, a "blind" course of sulphadiazine was started; this totalled 18 g. The temperature fell at once, and the condition rapidly improved. Pregnancy had been diagnosed during this fever.

On April 3 a similar attack started with a slightly higher remittent fever, which was treated with a course of sulphathiazole. This seemed to have less effect. Near the end of this attack there was a slight loss per vaginam, which diminished over a course of two weeks, and it was at this stage that the diagnosis was made (other investigations having proved negative) when the pathologist reported an agglutination by the patient's serum of a *Brucella abortus* suspension in a dilution of 1 in 2500. A further attack began on May 24, which soon produced obvious signs of impending abortion. In spite of the usual symptomatic treatment, uterine action became noticeably more and more vigorous, and on May 30 a 6-in. foetus in excellent condition was aborted. The placenta was apparently healthy except for three small areas of recent necrosis and a slight odour. Unfortunately no pathological investigation was made. There was an immediate and dramatic improvement in the patient's condition, with no fever twelve hours after delivery and none since. (Three days before the abortion the temperature had risen to 101°). An examination of the patient's serum on Nov. 3, 1943, showed a positive agglutination up to a dilution of 1 in 750. Her general condition had much improved, and she felt very well. On Jan. 17, 1944, the agglutination titre was 1 in 250.

Sulphonamide therapy was used during this illness—first because it was advised (as prophylaxis) by Manson-Bahr (1940); and, secondly, because protein shock and vaccine therapy had been of little avail in other local cases. Full doses of vitamins (including E) were given before and after conception.

Whereas the treatment of brucellosis is primarily the prevention of the infection in cattle, public health reports in the U.S.A. in 1938 proved that efficient pasteurization is a safeguard, except in occupational contacts; which seems an added argument for universal pasteurization until our milk is produced uninfected.

My thanks for help and advice are due to Dr. Helena Wright, Miss S. G. Mocatta, F.R.C.S., and Prof. L. P. Garrod.

Harpenden. A. R. H. WILLIAMSON, M.R.C.S., L.R.C.P.

REFERENCES

- Harris, H. J. (1941). *Brucellosis, Clinical and Subclinical*, New York.
Huddleson, I. F. (1939). *Brucellosis in Man and Animals*, New York.
Manson-Bahr, Sir P. (1940). In *Index of Treatment*, ed. by Sir R. Hutchison, Bristol.
Topley, W. W. C., and Wilson, G. S. (1936). *Principles of Bacteriology and Immunity*, 2nd ed., London.

Observations on Personal Infestation by the *Acarus scabiei*

The following points which I noted during the infestation may be of interest.

CASE NOTES

On Oct. 24, 1942, at 2.10 p.m., a particularly active female mite just removed from a patient was, for convenience of observation, placed upon the interdigital web of my left hand between thumb and index finger. The mite quickly moved a distance of 1 cm. and, lodging in a furrow of the skin, tilted its body obliquely with the aid of its hind-leg bristles and began to bore into the side of the furrow. The white translucency of the mite, the pie-crust edge, brown appendages, active silk-like bristles, and globular body were all apparent when viewed through the 1/3 objective microscopical hand-lens.* Within a very few minutes the head and appendages were buried, but it was 67 minutes† before the distal end of the mite completely disappeared, leaving the glistening hinder bristles waving posteriorly. A clean-cut, rather darkened upper edge of the stratum corneum was visible where the mite had started to burrow, while the blurred brown anteriorly placed appendages could be seen through the translucent stratum corneum.

*For really close observation the low-power (1/3) objective lens of the microscope used as a hand-lens is, with practice, found to be very convenient; a small ink-dot, marked on the web of the hand, near which the itch-mite should be deposited, serves as a quick guide to its position. The observer's eye should be placed near to the proximal end of the threaded metal-piece.

† Munro (1919) states that under favourable warm conditions the mite can conceal itself completely in so short a period as 2½ minutes. I have been less fortunate, however, in finding a sufficiently virile mite, since upon the several occasions when I have carried out similar experiments upon my own person I have been unable to observe the mite so much as bury its head and appendages in less than a quarter of an hour or its entire body in less than one hour.