gave a positive *personal* history, and forty-eight of these also had a positive *family* history. Forty-eight gave *no personal* history, but a positive *family* history was obtained in all of them except one.

The various allergic manifestations in the personal and family histories have been tabulated and the closeness of the allergic inheritance noted.

A family history of stammer was obtained in sixty-five of the 100 cases, and the closeness of the stammering inheritance has been noted.

Stammering tends to run in families. The hereditary factor plays an important part also in the allergic diathesis—the constitutional “make-up” which is apt to become sensitive being transmitted from one generation to another. A general tendency to excitability and nervousness frequently runs in the families of stammerers, who themselves are often “nervous” and excitable and whose mental tension—suppressed anxiety—often causes physical tension; such emotions generally aggravate the stammer. Nervous, emotional, and psychical stimuli have also an influence in allergic conditions, and it has been suggested that, in asthma, certain emotions—fear, anxiety, etc.—may precipitate an attack. These, however, appear to be mere aggravating factors, and are of importance only in the presence of the allergic predisposition of which they are a frequent accompaniment or a result. The vascular system through its close connexion with the nervous system may be influenced by fear, anxiety, anger, and other emotions, in stammer and also in allergy.

Notwithstanding their nervous and rather unstable temperament, stammerers are usually intelligent and have good brains. Allergic individuals also—for example, sufferers from migraine—are often very alert and active mentally.

In allergic migraine the hereditary factor is particularly strong and the exciting factor usually a food allergen. Sixty-five of the 100 stammering children gave a family history of migraine and thirty-two a personal history of it. Forty-five had a personal history of “fastidiousness” towards food generally or upsets after particular foods.

The close and practically constant association of stammering and allergic manifestations in the personal and family histories of the stammerer, as revealed by the present investigation, rather favours the view that there is something more than a mere casual relationship between stammering and the allergic diathesis.

REFERENCES

- Forbes, H. S., and Cobb, S. S. (1938). *Brain*, 61, 221.
Goltman, A. M. (1936). *J. Allergy*, 7, 351.
Kennedy, F. (1926). *Arch. Neurol. Psychiat.*, Chicago, 15, 28.

R. Cento (*Minerva med.*, 1938, 29, 235) records his observations on ten patients with ulcerative tuberculous lesions and purulent sputum containing a large number of bacilli who were treated for thirty consecutive days by intravenous injections of 2 c.cm. of beeswax dissolved in 5 per cent. of olive oil and 10 per cent. of cod-liver oil, combined with calcium by mouth or intravenously. In all the patients after the first ten injections there was a diminution in the quantity of sputum, which subsequently became less purulent; finally there was only a little morning expectoration. In all the ten cases after the first ten to fifteen injections there was a diminution in the number of tubercle bacilli, which assumed a granular appearance and became no longer acid-fast. At the end of treatment four patients became sputum-negative, and in two others it was possible to find only a few acid-fast bacillary forms on examination of the gastric juice. Inoculation of numerous specimens of this sputum on Petraghani tubes produced a macroscopic growth in only two cases.

THREE CASES OF INTUSSUSCEPTION IN THE ADULT

WITH REFERENCE TO AETIOLOGY

BY

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Acute intussusception in the adult is rare, and then usually occurs in connexion with “tumours” of the intestinal wall (Fiske, 1937; Goodall, 1910); but this is not an essential factor (Bryan, 1937), for in Case III, so far as could be found, no initial cause was present. Several cases have been reported in which the causal tumour was discovered only at subsequent operations (Oughterson and Cheever, 1929). In infants so-called primary intussusception is said to arise in connexion with inflammatory changes in the lymphoid tissue in the mucosa of the lower end of the small intestine (Perrin and Lindsay, 1921). This lymphoid tissue swells, and forms as it were a “tumour.” The accompanying illustration shows this

Specimen taken from a fatal case of intussusception in an infant. The caecum and lower few inches of ileum have been opened from behind, and a sessile tumour-like mass of lymphoid tissue is seen about three inches from the ileo-caecal valve. This formed the apex of the intussusception.

“tumour” formation very well. At operation in infants almost invariably the lymph glands in the mesentery are also enlarged, a change not found in these three cases. That so-called primary intussusception does not occur so commonly in the adult is said to be due to the fact that lymphoid tissue becomes reduced with age, as is well seen in the pharyngeal and palatine tonsil areas, and also because the lumen of the intestine is relatively larger in the adult.

Intussusception differs from other forms of intestinal obstruction in the fact that the patient usually passes stool, as is well shown here. In infants the stool often contains blood and mucus, but in these cases no blood was noticed.

Case I

In December, 1937, a woman aged 47 was admitted to hospital complaining of ten days' intermittent abdominal pain. Her history contained nothing of note save an attack of abdominal colic one year previously, that lasted a few hours only.

Ten days before admission there was an onset of mild generalized abdominal pain not associated with vomiting. Seven days before admission the pains became more severe, and were

associated with vomiting. She volunteered the statement that they were like labour pains, lasting two minutes every ten minutes. The pain was localized to an area to the right of the umbilicus, and persisted most of the day. Five days before admission she was almost free from pain, but as her bowels had not been opened since the onset of the pains she took senna. Four days before admission her bowels were open, but the pains became more severe and she vomited many times. Two days before admission she again took senna, with the same result: the pains became very severe and there was much vomiting. On the day of admission her bowels were open. (On no occasion did she pass blood.) The pains and the vomiting continued.

Examination.—Her temperature was 98° and pulse 80. She was seen to have a typical attack of abdominal colic. On inspection a mass was observed in the abdomen, to the right of and below the umbilicus; it was dull to percussion, and was tender but not fixed. Her private doctor had pointed out that the mass became harder during an attack of colic. On rectal examination no abnormality was found, and no blood. In spite of the low pulse and temperature, a diagnosis was made of appendix abscess, with involvement of gut causing intestinal obstruction.

Operation (by C. L. H., under general anaesthesia).—An intussusception was present, the apex of which was in the transverse colon. On reduction it was found that a sessile tumour, 2 cm. in diameter, situated in the small intestine three inches above the ileo-caecal valve, had formed the apex of the intussusception. Reduction of the intussusception was easy up to the ileo-caecal valve; the last part—that is, reduction of the tumour and the ileum out of the colon—gave some difficulty. To remove the tumour it was necessary to open the gut, which was closed in two layers. No other tumours were found in the limited part of ileum examined.

When seen in May, 1938, the woman was very well.

I am indebted to Dr. Gilmour of the Bernhard Baron Institute of Pathology of the London Hospital for the following report and observations on the tumour.

PATHOLOGICAL REPORT

The specimen was a nodule 2 cm. in diameter received in 4 per cent. formaldehyde. The greater part was round, smooth, and brown, but one surface, 1.5 cm. in diameter—the cut surface of removal—was flat and showed rough white muscularis. On section the round part showed an outer zone, up to 1.5 mm. deep, of firm brownish or yellowish-white thickened mucosa which was ill defined inferiorly. Beneath this was a firm yellowish-white mass in the submucosa which infiltrated the muscularis. The muscularis was hypertrophied up to 4 mm. thick.

Microscopically the growth shows polygonal and columnar cells arranged in branching and anastomosing trabeculae, many of which contain alveolar spaces. The trabeculae are often two cells wide, but many are much wider. The cells at the borders of the trabeculae and surrounding alveolar spaces are palisaded and usually columnar. The remaining cells are polygonal. The cytoplasm in the basal parts of the columnar cells and in the smaller polygonal cells is dense, but in the larger polygonal cells is slightly rarefied. The denser cells are stained deep red or purple, and appear indistinctly granular in haematoxylin and eosin. The granularity is most marked in the bases of the columnar cells. The less dense cells are deeply stained and show distinct pink or purple granules. A few cells contain small vacuoles. In some places where the cells are separated slightly they are seen to be connected by intercellular protoplasmic bridges not unlike the prickles of squamous epithelium. By Fontan's silver impregnation the basal cytoplasm of the columnar cells, and to a much less extent the cytoplasm of other cells, shows numerous finely particulate argentaffin granules. The borders of the trabeculae are consequently outlined sharply by this method. Sections of tissue fixed for six weeks in formaldehyde, transferred to Müller's fluid for one week and embedded in paraffin, showed the chromaffin reaction. The chromaffin reaction was also obtained by placing for four days in Müller's fluid paraffin

sections of formalin-fixed tissue. The reaction is seen as a bright lemon-yellow diffuse coloration of the parts of the cells that show abundant argentaffin granules. The chromaffin reaction differs from that given by the adrenal medulla in its colour and by the fact that it is given by tissue fixed in formaldehyde for a considerable time. Other argentaffinomas examined by me have shown these peculiarities in the chromaffin reaction. Only a very few cells contain a scanty amount of cholesterol esters yielding liquid crystals on heating. The nuclei are uniform, small, and round, with prominent nuclear membranes, pale nucleoplasm, a scanty net of delicate chromatin threads, several small nodes, and one to three small nucleoli. The alveolar spaces are small, and contain a lightly stained vacuolated coagulum. The stroma of the growth is scanty, and consists of collagenous and smooth muscle fibres and a few vessels. Some of its spindle cells contain a little granular fat.

The mucosa has lost its superficial epithelium, is inflamed, and is extensively infiltrated by growth; intestinal tubules are very scanty. The muscularis mucosae is slightly thickened and gives extensions into the stroma of the growth beneath. The small amount of muscularis present in the section is infiltrated by trabeculae of the growth.

The tumour is an argentaffinoma, locally malignant in that it is growing by infiltration.

Case II

In March, 1936, a woman aged 66 came to hospital complaining of severe abdominal pain. She had been admitted on two previous occasions on account of attacks of abdominal colic, but on investigation no cause was found.

On the day before admission she had severe colicky abdominal pain, most marked to the right of the umbilicus, but radiating to the left side and to the back, though not to the shoulders. The pain was associated with much vomiting and diarrhoea: no blood was seen in the stools.

Examination.—Her temperature was 99° and pulse 120. The notes state that examination of the abdomen revealed rigidity of an area to the right of the umbilicus, deep to which there was a rounded tumour "which suddenly disappears." No abnormality was found on rectal examination. A diagnosis of intestinal obstruction due to a gall-stone was made in view of the previous history of colic.

Operation (by Mr. Alan Perry, under spinal anaesthesia).—An intussusception, ileo-ileal, was present, which was about two feet in length from point of entry to apex. Reduction was not difficult, and at the apex was found a sessile tumour (a lipoma) 3 by 1.5 cm. in diameter. To remove the tumour it was necessary to open the gut, which was closed in two layers. The gall-bladder contained one large stone about an inch in diameter. Convalescence was satisfactory.

The pathological report stated that there was venous engorgement and acute inflammation of a subserous intramucosal lipoma of the ileum, with ulceration of overlying mucosa.

The patient was well when seen in January, 1938. She complained of flatulence, but had had no other attacks of colic since the operation.

Case III

In May, 1935, a man aged 27 was admitted to hospital complaining of eight hours' abdominal pain. He had had an attack four and a half years previously. Pain started in the region of the umbilicus, and later shifted to the right iliac fossa. Since then, every one or two months, he has had at night attacks of abdominal pain which lasted a few hours. The pain usually remained in the region of the umbilicus.

Eight hours before admission he had severe colicky abdominal pain which made him "double up." The pain was associated with vomiting. The bowels had been open once since the onset of the pain.

Examination.—The temperature was 98.8° and pulse 78. The abdomen was tender and rigid on the right side, but no abnormal lumps were felt. Rectal examination revealed

nothing abnormal. A diagnosis of acute appendicitis was made.

Operation (by Mr. Hirschfeld, under general anaesthesia).—An intussusception was present. The apex of the intussusception was in the transverse colon, and on reduction it was found to be the ileo-caecal valve. No tumour or other cause was discovered. The appendix was removed. Convalescence was satisfactory.

The pathological report stated that there was venous engorgement of the appendix.

One month after operation the patient was well, having had no more attacks of pain since. He has answered subsequent inquiries, and wrote in March, 1938, that he had been very well.

Summary

The rarity of cases of acute intussusception in the adult, and the aetiology of the condition, are discussed.

The history of three recent cases is given. In two of these the causative factor was a neoplasm.

I am indebted to Mr. H. S. Souttar and Mr. Alan Perry for permission to publish the notes of the three cases, which were under their care in the London Hospital.

REFERENCES

- Bryan, T. B. L. (1937). *British Medical Journal*, 2, 1222.
Fiske, F. A. (1937). *Ann. Surg.*, 106, 221.
Goodall, H. W. (1910). *Boston med. surg. J.*, 162, 445, 491.
Oughterson, A. W., and Cheever, D. (1929). *Surg. Gynec. Obstet.*, 48, 682.
Perrin, W. S., and Lindsay, E. C. (1921). *Brit. J. Surg.*, 9, 46.

CONGENITAL DEFORMITIES OF LEGS

BY

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On December 1, 1936, a girl aged 16 was brought to me as she was said to have been "born without any legs." She came into my consulting-room walking on her hands, using the base of her trunk as a middle support. She was a most curious sight when I first saw her: one had the impression of a rather large dog coming into the room, an impression made stronger when she leaped from the floor to an ordinary chair and squatted on her haunches with a rather pleased smile at her trick. Her speed when "walking" was amazing; she could cross the room as fast as an ordinary adult, and when she wished to sit on a chair she leaped into it and sat like an ordinary human being. The change from the ambulatory position on the floor, where she looked like a domestic animal, to that on a chair, where she took on the appearance of an ordinary individual, was dramatic. She stood with most of her weight on her left lower limb, and the two curious teat-like projections from the right lower limb enabled her to balance herself on her two "legs" with the aid of one hand. She wore a large sock to cover the right stump, and a boot—much deformed—on the left foot.

On examining her more closely one found that through constantly walking on the palms of her hands with the wrists dorsiflexed she had developed a greatly thickened palmar skin, comparable in character to that of the sole of the foot and studded with "hoofs." Apart from the acquired thickening of the palmar skin and the congenital deformities of the legs the girl was normal. The "legs" themselves were very interesting, and are well shown in Fig. 1. The right one was about 6 inches long, as

measured from the great trochanter; it was a large fat stump ending in two teat-like projections, presumably abortive toes, and looked for all the world like a cow's udder. One could feel bones inside the left "leg," which was about a foot long, and had a femur, a tibia, and three inner toes; the fibula and two outer toes were missing, and the dimple over the tibia so characteristic of the con-

FIG. 1.

genitally absent fibula was present. X-ray photographs revealed that both hips were dislocated, and that there was an abortive femur with condyles in the right stump and an immature femur and tibia in the left stump.

The girl herself, content for many years, was now reaching womanhood, and wanted to be the same height as others and to walk like others. Was it possible? My first thought was to straighten the left knee and to put the left foot into full equinus in order to make the left lower limb as long as possible. Afterwards the limb would have been fitted into the socket of an artificial limb which had a knee-joint at the usual level. I have done this before in a similar unilateral case with success. I thought we might fit a tilting-table leg to the right stump. Her bodily development was good, and there was no doubt she would be able to use a tilting-table leg satisfactorily.

Those responsible for the girl were not in favour of an amputation of the right stump, as they were afraid that, if the attempt to make the girl walk failed, the operation might have ruined any return to her original method of progression. I wished for a further opinion, and sent her to my friend the late Dr. H. R. Moxon, at Queen Mary's Hospital, Roehampton, making use of the Ministry of Pensions scheme whereby civilians have the advantage of advice from expert military limb-fitting surgeons.

Dr. Moxon's Report on the Case

"The fitting of artificial limbs in this case, though presenting difficulties common to all such cases of deformity, nevertheless does not present insuperable difficulties—in fact, I think there is a reasonable chance of obtaining quite a successful result. This is enhanced by one very important asset—namely, the girl's obvious wish to be fitted and look like a normal girl in height and appearance, by which her willing co-operation is assured. Also youth and strength are on her side, and thus the physical and mental aspects are favourable.

"*Right Side.*—This should be fitted with a metal tilting-table leg made as light as possible, with the body weight taken accurately on the tuber ischii. The stump, however, is at present much too long, measuring about 6 inches. Shortening by at least 3 inches is necessary, the aim being to give a snugly fitting socket without too much prominence in front, which would be unsightly under the skirt and would at the same time make balancing more difficult and get in the way of the instrument on the left side.