disappeared. Two cases of retrobulbar neuritis had those abnormal movements, and in these the pupils were markedly dilated. In the following cases the motor side of the pupillary arc was presumably affected. A middle-aged man sustained a basal fracture of the skull in falling off a bus. He had good vision in both eyes, but had a complete third-nerve palsy on one side, and was Wassermann-negative. There was an undulate movement of the pupil border. A similar case observed over some months gradually recovered and the segmental movement merged into the normal total response. An elderly woman, having good vision in both eyes and Wassermann-negative, developed an internal ophthalmoplegia of vascular origin, and in a pupil which was immobile directly and consensually to light segmental movement was seen. A young married woman—Wassermann-positive, myopic-astigmatic, with good corrected distance vision—complained that she could not read. Both pupils were dilated and responded poorly to light, and there was bilateral paresis of accommodation. Both segmental and undulate contraction of the pupil were seen, and occasionally there was a feeble total movement of the pupils. This woman has been observed over 18 months and the signs are unchanged; there has been no recovery with establishment of the normal contraction. Her antisyphilitic treatment has been erratic. Two cases of unilateral Adie's pupil showed the abnormal movement. Squinting amblyopes never showed the abnormality.

To watch the behaviour of the pupil in this respect under the influence of factors acting peripherally, routine mydriasis with homatropine 1% was studied. After about 10 minutes the lessening total contraction gave place to segmental contraction before immobility. On the other hand, no abnormal movement was seen after mydriasis from subconjunctival injection of cocaine 2% with adrenaline.

Discussion

This pupillary unrest may occur, then, in sufficiently severe disorder of the afferent or efferent nervous paths to the sphincter of the pupil. Further, it may be induced by the peripheral action of mydriatics which inhibit the choline flux, but not by those mydriatics which stimulate the sympathetic. It is not seen in the contracted pupil. It would seem to be due, first, to diminished conduction in the nerve paths to the sphincter pupillae, for the movement is seen only in pupils of diminished response; and, secondly, there must be a pathological variation or inequality of flux within the nerve plexus. Some vestigial impulses get through and produce a local twitch, and in the immediate neighbourhood these impulses fail, or arrive after an interval to produce an undulate reaction. The chronaxie of the nerve paths to the sphincter is unequal throughout its distribution in these cases. Wolfrum (1926), when examining the minute histology of the pupil, was struck by the radial distribution of the nerve fibres entering the sphincter pupillae, and he speaks of the Sattler phenomenon. If the distribution of the third nerve to the sphincter of the pupil were a fine uniform plexus it would be difficult to understand a local emergence of movement, but as it is supplied by twigs running into the muscle fibres and at right angles to them the explanation of the origin of the movement becomes acceptable.

Finally, the sign, so far as this short investigation will allow us to conclude, would not appear to have any localizing value; it is a fibrillation of the pupil resulting from impaired integrity of the nervous arc of the sphincter pupillae occurring at any part of the arc.

BIBLIOGRAPHY

- Loewenstein, A. (1917). *Klin. Mbl. Augenheilk.*, **59**, 148.
— (1919). *Ibid.*, **62**, 818.
Sattler, C. H. (1911). *Ibid.*, **49**, 739.
Wolfrum, M. V. (1926). *Handbuch der gesamten Augenheilkunde*. Graefe-Saemisch-Hess, Teil I, **2**, 183.

A. M. Harvey and F. T. Billings (*Amer. Heart J.*, 1945, **29**, 205) report three cases of coronary occlusion after the institution of therapeutic hyperpyrexia for sulphonamide-resistant gonococcal urethritis. All the patients were young adults with no previous cardiovascular disease. In no instance was the patient critically ill. Electrocardiograms in each case showed progressive changes similar to those observed in patients with occlusion of the anterior ascending branch of the left coronary artery.

Medical Memoranda

Fistula between the Small Intestine and One Horn of a Uterus Bicornis

The following notes of an unusual case of fistula may be found of interest.

CASE HISTORY

A single woman of low-grade mentality, 28 years of age, was first seen in March, 1944, at the obstetrical department, where she was found to be pregnant. The pregnancy was complicated by hydramnios and confirmed by radiography. On May 29 she was prematurely delivered of a stillborn exomphalic male foetus. The puerperium was characterized by an irregular temperature with rather offensive lochia, but she soon settled down and was discharged on the 14th day.

On July 6 she was readmitted complaining of an offensive vaginal discharge and severe perivulval irritation. The vulva was grossly excoriated and profuse discharge was coming from the vagina. On vaginal examination, among other debris several undigested cooked green peas were seen coming through the cervix uteri. The patient had eaten peas four hours earlier. The discharge continued while she was under observation, and consisted of undigested food giving bile-pigment reactions. It was obvious that a fistula existed between a high part of the intestinal tract and the uterus.

On July 26 the abdomen was explored and on the left side of the pelvis a curious pyriform uterus was seen. At the fundus there was an adherent matted mass of small-intestine coils. The coils were gradually separated, and one was found welded on to the fundus. On separation this coil had an opening the size of a sixpence continuous with the uterine lumen. Both openings were closed.

Further examination of the uterus revealed the fact that the pyriform uterine swelling was an enlarged horn of a uterus bicornis. Separate Fallopian tubes opened into the apex of each horn. It is probable that the fistula had resulted from an attempt to end the pregnancy.

I am indebted to my colleague Mr. Barnie-Adshead for the opportunity to operate on this case, and to Dr. J. C. Miller for help with the case notes.

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Melaena due to Peptic Ulceration of a Meckel's Diverticulum

The case recorded below seems of sufficient interest and rarity to merit description. The occurrence of peptic ulceration in a Meckel's diverticulum is rare in any country, but seems particularly rare in England. In a review of the literature up to 1934 (Johnston and Renner, 1934) 60 cases of the condition had been described, of which only seven had come from English journals.

Meckel's diverticulum, a remnant of the vitelline duct, is present in 2% of the population, and is one of the sites of heterotopic gastric mucosa formation. It is prone to the same diseases—of which peptic ulceration with haemorrhage is one—as the stomach and the first part of the duodenum. The majority of cases occur in children and young adults of the male sex, although two of the four cases reported by Chesterman (1935) occurred in the female. The presenting symptom is rectal haemorrhage. The bleeding is often recurrent and may produce a severe degree of anaemia. Pain is not always present, but when it occurs is colicky in type and umbilical in situation. In the absence of perforation there is usually no clinical abnormality detectable on abdominal or rectal examination. It is impossible to demonstrate the diverticulum on radiological examination.

CASE REPORT

A boy aged 16 was admitted on June 24, 1944, with abdominal pain and the passage of blood per rectum for the previous 13 hours. The onset was sudden, and occurred while he was at work as a railway porter. The pain was colicky, and was situated in the region of the umbilicus; the attacks of colic lasted a few minutes and recurred every few minutes. The passage of blood coincided with the onset of the colic. While in the ward he passed several ounces of dark-red blood. There was no vomiting. He gave a history of three previous vague attacks of "stomach-ache" associated with constipation during the past year. Each attack lasted about one week. He had no previous melaena.

On examination the tongue was furred. The abdomen showed slight generalized tenderness and rigidity, but no mass could be felt. Rectal examination revealed the presence of blood, without any other abnormality. A pre-operative diagnosis of intussusception was made, and operation was proceeded with immediately.

Operation.—A right mid-abdominal split-rectus incision was made under open ether anaesthesia. There was no evidence of intussusception. The whole of the large bowel and some coils of the small bowel were distended with blood. On further search a Meckel's diverticulum was found on the antimesenteric border of the small bowel, 2½ ft. from the ileo-caecal valve. The diverticulum and the

whole of the bowel distal to it were full of blood, while the proximal bowel was collapsed and normal in colour. The diverticulum itself did not show any external evidence of inflammation, but there was a well-defined indurated area near the base. The diverticulum was excised and the bowel repaired transversely. The abdomen was closed without drainage.

He made an uneventful recovery, and was discharged 20 days after operation.

Examination of Specimen.—On section the absence of generalized inflammation was confirmed. Near the base was an indurated area half an inch in diameter, in the middle of which was a shallow ulcer a quarter of an inch in diameter, involving the mucosa only. In the centre of the ulcer was the open lumen of a small blood vessel from which blood could be expressed. Microscopical sections taken through the middle of the ulcer showed the presence of gastric mucosa with oxyntic cells.

I wish to thank Dr. H. H. MacWilliam, medical superintendent of Walton Hospital, for permission to publish this case; and to Dr. R. Y. Dawbarn for the preparation and examination of the microscopical sections.

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REFERENCES

- Chesterman, J. T. (1935). *Brit. J. Surg.*, **23**, 267.
Johnston, E. B., and Renner, G. (1934). *Surg. Gynec. Obstet.*, **59**, 198.

Large Foreign Body in Stomach, with Complete Absence of Usual Symptoms

The following case may be considered interesting enough to merit publication.

CASE HISTORY

The patient, an African woman aged 29, mother of four healthy children, was admitted from the out-patient department with a diagnosis of "abdominal tumour"; she was a well-developed and well-nourished woman of medium height, and weighed 8½ st. She gave a history of "a lump in the belly," which had been present for about five years, was getting larger, and now interfered with her when weeding, as she found it difficult to stoop. She had no pain, vomiting, or other disturbance, and there were no signs of wasting or lack of nourishment.

On examination a large swelling was visible, extending from the left costal margin into the pelvis. It was smooth and firm to the touch, not tender, and was easily movable in any direction. This movement caused no discomfort of any kind. The patient had a very good appetite, and could eat a large meal of rice, fish, and vegetables without any discomfort. She was a very cheerful person, and looked upon her condition as a joke.

Owing to the size of the tumour I was forced to make a rather large incision in the stomach. The cardiac end was delivered without trouble, but the pyloric end was firmly gripped, and I had some little difficulty in releasing it. The mass when removed was a complete cast of the stomach with prolongations into the oesophagus and the duodenum. It was very firm in consistence, it could be dented with the finger, but the finger could not be forced into the mass. On section it had the usual appearance of a "hair-ball," consisting of fibres, mainly mango, rice grains, and other food debris. The patient made an uneventful recovery.

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A Fibroma weighing 320 Grammes growing from the Posterior Vaginal Wall

Owing to the rarity of its nature, the following case may be of interest to others:

The patient—a married nullipara of 40—came up complaining of a blood-stained vaginal discharge for two months. She had very little control of micturition but was otherwise well. Her periods were regular and lasted 5 days in every 28. On examination a hard mass 3 in. in diameter was felt completely filling the vagina. It was dark red in colour but not friable, and was thought to be a cervical fibroma.

At operation, performed by Mr. Clifford White on Oct. 28, 1944, it was possible to pass a finger above the tumour and a normal cervix could be felt. The tumour was then found to be arising from the posterior vaginal wall 2 in. below the cervix. A left-sided Schuchardt's incision was made, but, owing to the size of the tumour, removal had to be by the process of morcellation. When about one-third had been removed in this way the capsule was stripped and the remainder of the tumour shelled out. The bed was obliterated with catgut sutures and the vagina and perineum repaired. The tumour was hard and not very vascular. It weighed 320 grammes and was histologically a fibroma.

Secondary haemorrhage from the perineal incision occurred on the ninth day. The bleeding-point, which was in the region of the internal pudendal artery, was ligated; the wound was packed and sulphamilamide powder insufflated round the edges. Four pints of Group O (IV) blood were given. Recovery thereafter was good. The vagina healed well, and when seen three months after operation the patient's condition was quite satisfactory.

I am indebted to Mr. Clifford White for permission to publish the above details.

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Reviews

BONE-GRAFTING FOR FRACTURES

Bone-Grafting in the Treatment of Fractures. By J. R. Armstrong, M.D., M.Ch., F.R.C.S. Foreword by R. Watson-Jones, M.Ch.Orth., F.R.C.S. (Pp. 175; illustrated. 25s.) Edinburgh: E. and S. Livingstone. 1945.

This may be regarded as a supplement to Mr. Watson-Jones's book on fractures. The amount of work the author has put into it, considering his Service commitments, is truly commendable, even allowing for the aid of his enterprising publishers. As it seems likely that this is but the first edition of a work which will rapidly be added to, we venture to make some suggestions.

The descriptive operative surgery of the past has often been rendered valueless by the lack of analytical assessment. When Mr. Armstrong is in a position to quote statistics upon results his work will be more valuable. The justifiable enthusiasm for the onlay graft (and he was less enthusiastic only two years ago—see *Lancet*, Aug. 14, 1943) should be tempered by acknowledgment of the pioneer work of M. S. Henderson and of Willis C. Campbell. The latter has admirably described and illustrated the technique, to which little has been added since. The meaning of the term "creeping substitution," applied to the replacement of dead graft by living bone, may be well enough known, but it would be worth while drawing attention to Phemister's contribution to the subject. The question of the osteogenetic properties of the tibia is badly stated and should be clarified. In spine grafting the idea of roughening the neural arches with a chisel or file would be scorned by those surgeons who count their spine grafts in hundreds. Mr. Armstrong should realize that the operative treatment of adduction fractures of the femoral neck did not start with Smith-Petersen, whose nail, after all, is merely a mechanical derivative of the fibular graft previously in common use in Holland. Our own Hey Groves contributed something to that problem at least 30 years ago.

It is interesting to see how Mr. Armstrong differs from his sponsor (*Fractures and Joint Injuries*, 3rd edition) in some important respects. For the Monteggia fracture the former does not hesitate to excise the head of the radius at the same time as the ulna is grafted; the latter condemns the procedure. Neither gives us statistics to indicate which is right. Armstrong uses an Esmarch's tourniquet; Watson-Jones does not like it. The former is even prepared to leave a tourniquet on the leg for two or three hours, and not remove it until plaster has been applied. This is bad. The liability to ischaemic lesions of nerves, the reduced vitality of exsanguinated tissues, reactive hyperaemia, and the constrictive effects of plaster, form a serious combination of danger factors. Mr. Armstrong, no doubt, is a gifted technician, and even if his results are impeccable his teaching should be safe for the not-so-gifted. It is all very well for Watson-Jones to write in his foreword hyperbolically about the infection of a closed fracture being a "disaster worthy of a court of inquiry." Devitalization of tissues is well known to be an excellent breeding-ground for infection, and a book which condones it should equally be criticized.

We do not think that Mr. Armstrong has altogether been helped by Mr. Hennell's coloured photographs, in which so often a very dark blue background obscures the detail of the instruments being used. The lavish scale upon which this book has been produced should be noted at a time of paper scarcity. If printed in uniformity with its bigger companion by Mr. Watson-Jones, and if blank spaces were filled, it could have occupied a quarter less paper. One has a feeling that it is premature and has added little of real value at a time when the practice of bone-grafting is still in a state of flux.

RADIOLOGY IN 1944

The 1944 Year Book of Radiology. Diagnosis, edited by Charles A. Waters, M.D.; Associate Editor: Whitmer B. Firor, M.D. Therapeutics, edited by Ira I. Kaplan, B.Sc., M.D. (Pp. 448; illustrated. 31s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

In spite of five years of war the *1944 Year Book of Radiology* well maintains the high standard of former years. Because of the restrictions of the war the papers reviewed come, in the main, from North and South America and the British Empire.