Discussion

The factors contributing to the scatter of results as shown in fig. 5 are threefold. Firstly, there is a normal variation in the timing of ovulation of the order of plus or minus two days (Bell and Loraine, 1965) even in patients with normal 28-day menstrual cycles. It therefore follows that the time interval in which conception may take place will be at least four days and possibly even five days when the survival time of the ovum in the female genital tract after ovulation is considered. Secondly, it has been shown in this investigation that the inaccuracy in sonar measurement of the fetal crown-rump length is plus or minus 2 mm. At the 10th week this is equivalent to plus or minus one day. Finally, the range of biological variation, which, logically, would be very small in the first few weeks of gestation, would increase as pregnancy advances. This latter factor may account for the increasing scatter of results as shown in fig. 5 towards the end of the period under study.

No attempt has been made in this investigation to correlate sonar maturity with the ultimate date of delivery as it was thought that the time of spontaneous onset of labour was much more variable than the potential error involved in accepting the date of the last menstrual period when the patient is intelligent and well motivated.

Notwithstanding these factors this investigation has shown that it is possible to predict the maturity of a pregnancy between six and 14 weeks, to within three days. No other procedure allows such a degree of accuracy and reliability at this or any other stage of pregnancy, and it is now becoming our practice

whenever possible to estimate in this way the maturity of "at risk" pregnancies and those where the menstrual history is in doubt.

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MEDICAL MEMORANDA

Meckel's Diverticulum Presenting as Fistula-in-Ano

IAIN McKAY, JOHN CALDER

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Meckel's diverticulum is a relatively common congenital abnormality, occurring in about 2% of the population. The majority of such diverticula do not cause symptoms, being found incidentally at laparotomy or necropsy. They may, however, present as acute abdominal emergencies closely mimicking acute appendicitis. Various authors have recorded rare presentations and complications of Meckel's diverticulum—for example, with peptic ulcer (Cobb, 1936), with tuberculosis (MacDonald, 1947), as perforation (Ward-McQuaid, 1950), and even a knot in Meckel's diverticulum giving rise to small-bowel obstruction (Walsh, 1950).

The following case of Meckel's diverticulum presented as fistula-in-ano. This complication has not been recorded previously.

Case Report

A 24-year-old man was referred to the casualty department of Glasgow Royal Infirmary on 14 April 1971 as a case of "ischio-rectal abscess." He gave a history of increasing pain in his left buttock of some two months duration, much worse in the two weeks preceding admission. On examination he had what appeared to be a perianal abscess on the left side. In the theatre that evening the abscess was drained of a small quantity of pus and the cavity was packed. Two days later he developed a frankly faecal discharge from the wound. Digital rectal examination yielded nothing abnormal and proctoscopy showed no internal opening of a fistula. Examination under anaesthesia was carried out and biopsy material was obtained from the rectal mucosa and wall of the perianal abscess. Both specimens were reported as showing non-specific inflammatory changes.

On 22 April barium-meal examination showed a possible fistula between small bowel and rectum, or to the exterior direct, the barium reaching the pelvis within an hour of administration (fig. 1). Barium-enema examination a week later showed a reduction in calibre of the rectum, pronounced mucosal irregularity, and "spiking," with swelling of the anterior and left lateral walls of the rectum. These changes could have been primary or secondary to a local abscess.

The patient continued to pass flatus and faecal material through the perineal fistula, and on 1 May sinography was carried out. This showed only a localized abscess cavity without any evidence of fistulous connexion to bowel. By the following week the local inflammation had settled considerably and though there was still some discharge from the perineal wound he was allowed home, to have further investigation as an outpatient.

Barium follow-through examination on 2 June showed an ileal loop communicating with the left pararectal abscess cavity, the appearances being suggestive of an isolated area of Crohn's disease with fistula formation. The remainder of the small bowel appeared normal (fig. 2). Slight faecal leakage continued, and on 22 September a further sino-

Royal Infirmary, Glasgow G4 0SF

IAIN McKAY, M.B., F.R.C.S., Surgical Registrar

JOHN CALDER, M.B., D.OBST.R.C.O.G., Registrar in Radiology

FIG. 1—Barium-meal appearances suggesting fistula between small bowel and rectum. FIG. 2—Appearances on barium follow-through examination suggesting isolated area of Crohn's disease with fistula formation. FIG. 3—Sinogram showing fistulous communication between perineum and terminal ileum.

gram showed quite definite fistulous communication between the perineum and terminal ileum (fig. 3).

At laparotomy on 30 September the only abnormality present was a long wide Meckel's diverticulum situated 2 ft (61 cm) from the ileocaecal valve, extending down into the pelvis, and densely adherent to the pelvic floor in the left pararectal sulcus. The diverticulum was freed distally as far as the surrounding induration would allow and excised, the ileum being closed transversely in the usual manner. The patient did very well postoperatively, and a mild wound infection responded rapidly to antibiotics. By 10 October abdominal and perineal wounds were fully healed and he was discharged.

The patient was reviewed as an outpatient on 7 December, when he reported that he had had a little discharge from the perineal wound. He was finally reviewed on 7 May 1972. He had had no symptoms whatever since his previous visit, and in particular the site of the perineal fistula had remained closed and perfectly dry. Examination confirmed that the wound was fully and soundly healed and covered with good, healthy epithelium. Digital rectal examination showed no residual induration in the rectum. He was asked to report back should he develop any further trouble and was discharged from the care of the unit.

Comment

It is of interest that the definitive diagnosis in this case was not made until laparotomy was carried out. Such conditions as diverticulosis coli, tuberculosis, carcinoma of colon and of rectum, and, of course, Crohn's disease were all considered in the differential diagnosis. In retrospect the radiological findings were entirely in keeping with the final diagnosis, but in view of the clinical history and findings a provisional diagnosis of Crohn's disease was considered to be the most likely possibility.

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