Hospital Topics

Abdominal surgical emergencies in the puerperium

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Summary

Since surgical emergencies in the puerperium are rare, surgeons and obstetricians amass little experience of them. There may be considerable delay in making a diagnosis, firstly, because the abdominal symptoms are thought to be related to the pregnancy, and, secondly, because the signs are rarely convincing in contrast to the symptoms. Any of the common surgical emergencies may occur in pregnancy and the puerperium and there are some others that appear to be a particular problem of the puerperium.

Introduction

The report on maternal deaths in England and Wales during 1967-9¹ records that out of the 2½ million women delivered in those years two died from acute appendicitis, two from peritonitis, one from intestinal obstruction, and two from acute pancreatitis. Many other women, however, present as surgical emergencies during pregnancy and survive. We have recently been impressed by the diagnostic difficulties that may arise when these conditions occur in the puerperium and by the severity of the illnesses suffered.

Case 1. Acute appendicitis

A 24-year-old primigravida presented in labour at term complaining of lower abdominal pain of several hours' duration. Eight hours after delivery she again experienced pain and was tender in the right iliac fossa. The pain persisted over the next two days, her abdomen becoming distended, and eventually she began to vomit. Three days after delivery she looked ill and complained of generalised abdominal pain. There was pronounced resonant abdominal distension and the whole abdomen was so tender that only light palpation was possible. Guarding was not notable. X-ray examination showed considerable small-bowel distension with fluid levels, but there was gas in the proximal colon. The white cell count was $10.2 \times 10^9/l$. She was thought to have peritonitis with paralytic ileus.

At laparotomy widely dilated loops of small intestine were exposed, covered with pus and fibrin, and on lifting the involuting uterus forward a gangrenous perforated appendix was found. This was removed, the small-intestinal contents were emptied into the stomach, and the whole abdomen was thoroughly washed out with a 0.1% tetracycline solution. Intravenous gentamicin was given during and after the operation. Ten days later she was discharged well.

Case 2. Acute appendicitis

This 34-year-old patient was admitted to hospital in labour. Labour progressed uneventfully over the next 18 hours, when she had a spontaneous vertex delivery of a healthy infant. During labour she complained of abdominal pain between contractions, and the abdomen was noted to be a little distended even after delivery. Next day she complained of generalised abdominal pain and the abdomen was noticeably distended and generally tender. No bowel sounds were heard. Her temperature was normal and the pulse rate was 80/min. She was transferred to a general surgical unit, where similar findings were noted. X-ray examination showed many gas-distended loops of small intestine. She was thought to have either primary intestinal obstruction or paralytic ileus. Laparotomy the same day showed a generalised purulent peritonitis, and a perforated appendix lying behind the uterus was removed; it seemed clear that the appendix had been inflamed for two or three days. Peritoneal lavage was performed. Recovery was uneventful and she went home after 10 days.

Case 3. Adhesive intestinal obstruction

A 20-year-old primigravida was admitted to hospital at 35 weeks of gestation with abdominal pain of two days' duration. The pain was colicky and tended to be right-sided, and on the day before admission it was accompanied by diarrhoea and vomiting. A normal appendix had been removed for suspected appendicitis two years previously. Because of pronounced tenderness in the right loin, fever, and the presence of pus cells in the urine a urinary tract infection was diagnosed and she was started on antibiotics. Ten hours after admission delivery was accomplished by low-cavity forceps. After delivery she was still tender in the right upper quadrant and right renal angle. During the next two days she complained intermittently of colicky abdominal pain, and on the third day she began to vomit bile-stained material and her abdomen became severely distended. She was feverish and showed signs of dehydration. Examination showed generalised abdominal distension and pronounced tenderness in the right abdomen, where a mass 15 cm in diameter was felt. Blood urea was 9.3 mmol/l (56 mg/100 ml), and the white cell count was $25 \times 10^9/l$. X-ray examination showed signs of a small-bowel obstruction.

After vigorous rehydration and under antibiotic cover laparotomy was performed. A mass of greenish black ileum was found trapped and rotated under an adhesive band. This was divided and some 90 cm of terminal ileum was resected and an end-to-end anastomosis was performed. The peritoneal cavity was washed out with noxythiolin solution. The patient made an uneventful recovery.

Case 4. Perforation in Crohn's disease

A 21-year-old woman was admitted to the antenatal unit in the 24th week of her second pregnancy with a short history of colicky abdominal pain and vomiting. The pain and vomiting settled rapidly, but during the next 10 weeks she had three admissions for a similar complaint, although on each occasion the symptoms settled. During one admission pus cells were found in the urine and she was treated for a urinary tract infection. She was readmitted in the 34th week having had colicky abdominal pain for one week. Soon after admission she went into labour and was delivered of a girl weighing 1820 g. For the next two days she had no abdominal pain. On the third day she again had intermittent colicky abdominal pain and occasionally

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vomited bile-stained material. This continued until the seventh day after delivery, although her bowels were open each day.

On examination the patient was found to be distressed by the continued abdominal colic. Her temperature was 38.5°C and her pulse rate 100/min. Peristalsis was seen, tenderness in the right abdomen was pronounced, and a large, craggy mass was palpable; guarding was minimal but rebound tenderness was present. There was an oedematous skin tag at the anus. X-ray films showed a partial small-bowel obstruction. Haemoglobin was 10.4 g/dl, and the white cell count was $13.6 \times 10^9/l$. Laparotomy the same day showed an abscess cavity 12 cm in diameter lying between the terminal ileum and transverse colon. The terminal 20 cm of ileum was thickened and oedematous, the appearance being typical of Crohn's disease. A Meckel's diverticulum lay 42 cm from the ileocaecal valve. The caecum and ascending colon were normal but the abscess was stuck to the proximal transverse colon. There was no detectable perforation in the ileum. The terminal ileum including the Meckel's diverticulum, the caecum, the ascending colon, and the proximal transverse colon together with the abscess cavity were removed. An end-to-end anastomosis was carried out using a single layer of silk sutures. She made a good recovery and went home on the 12th postoperative day. She had remained well six months later. There were typical histological changes of Crohn's disease in the terminal ileum.

Case 5. Ileus of colon after caesarean section

A 38-year-old woman had a past history of a stillbirth at 28 weeks and of a miscarriage at eight weeks. Her next pregnancy, 12 years later, progressed normally to term, when, in view of her age and history, an elective lower-segment caesarean section was performed. Forty-eight hours later she complained of abdominal pain and had generalised gaseous distension with active bowel sounds. Her temperature was normal and the pulse rate was 100/min. She was treated with intravenous fluids and nasogastric suction. Next day a flatus tube yielded a fair result but an x-ray film showed severe distension of the ascending, transverse, and upper descending colon. On the fourth day bowel sounds were louder but the distension was unchanged. On the fifth day small amounts of flatus were passed but the abdomen remained severely distended and x-ray examination showed fluid levels in the caecum, proximal colon, and small intestine. The electrolytes were normal, but in view of a low haemoglobin level (63%) blood was transfused. On the sixth day the abdomen remained tensely distended but was not tender. Bowel sounds were characteristic of obstruction.

Because of the lack of progress, the severe caecal distension, and the possibility of an organic obstruction (despite the occasional passage of flatus) we decided to operate; gross distension of the caecum and colon up to the splenic flexure was found. There was no detectable obstruction at that point and the descending and sigmoid colon was collapsed. A catheter was passed through an incision in the terminal ileum into the caecum and the colon decompressed; the small intestine was also emptied, the catheter withdrawn, and the incision oversewn. The patient made an uneventful recovery and was discharged together with her baby 14 days after the operation.

Case 6. Perforated peptic ulcer

A 42-year-old woman was admitted to hospital one week past term and had a normal delivery. She remained well until four days after delivery, when she complained of abdominal pain; generalised abdominal tenderness was found but there was no guarding, bowel sounds were heard, and the temperature and pulse were normal. Next day there was no change but on the sixth day she vomited freely; the abdomen remained slightly tender but rectal examination showed nothing abnormal. The following day she complained of more pain. The abdomen was distended and tender, with some guarding in the lower part. At 7 pm she complained of worsening abdominal pain and of pain in the left shoulder, and by 9 pm had pronounced abdominal distension and tenderness.

At laparotomy one hour later much turbid, yellow, inoffensive fluid was aspirated and a dilated small bowel was seen, covered in fibrin. There was much prepyloric induration and fibrin deposition and it was concluded that this was the site of a sealed perforated peptic ulcer. She made a good recovery but needed drainage of a large residual abscess in the lesser sac two weeks after operation. Five months later she complained of epigastric pain that often awakened

her from sleep and was relieved by food. Nine months after her first operation the pain was persistent and she had a Billroth I partial gastrectomy for peptic ulceration of the duodenum and lesser curve of stomach. Thereafter she remained well.

Case 7. Torsion of ovarian cyst

A 45-year-old woman had an uneventful delivery of her fifth child at term after a normal pregnancy. On the first post-partum day she complained of slight left-sided abdominal pain, and by the evening the pain was worse and accompanied by central abdominal distension. On the fourth post-partum day she still had steady dull abdominal pain and a large mass could be felt. Examination under anaesthesia showed a normal involuting uterus and, in the upper abdomen, a soft, oval, mobile swelling some 25 by 18 cm. Laparotomy showed a left ovarian cyst full of clot that had rotated 360° on a long pedicle; left salpingo-oophorectomy was carried out. Histologically the cyst showed a smooth fibrous haemorrhagic wall.

Discussion

A striking feature of these cases, especially of cases 1, 3, 4, and 6, was the delay in reaching a diagnosis and in deciding to operate. This seems to have been due mainly to a failure to consider the possibility of surgical disease. All the patients except one (case 5) suffered more abdominal pain than can reasonably be expected after delivery. We suggest that anything more than intermittent mild colicky lower abdominal pain is abnormal in the puerperium and that careful analysis of the site and character of abdominal pain is vital in arousing suspicion of surgical disease in the puerperium.

The other most striking feature was the modification of physical signs that occurred, probably due to the inability of the stretched abdominal musculature to respond to peritoneal irritation. This was particularly pronounced in case 6, and was specifically stated by Kark² to be a feature of the puerperal abdomen. On the other hand, tenderness remains a reliable physical sign, and it should not be disregarded because of an absence of muscle guarding.

ACUTE APPENDICITIS

It is generally agreed that the incidence of acute appendicitis is not affected by pregnancy, so that few examples will be seen during the short time of labour and the puerperium. Out of 26 cases of appendicitis associated with pregnancy among 49 681 births in Cleveland³ only three occurred in the puerperium. In Melbourne, ⁴ 5 out of 117 cases of acute appendicitis arising in 130 000 pregnancies, only seven occurred in the puerperium. The maternity unit in Aberdeen conducts some 4000 deliveries each year, so that acute appendicitis may be seen during the puerperium only about four times in 20 years; hence each obstetrician and surgeon may see only one such case.

The clinical picture of acute appendicitis in the puerperium is poorly documented. In both of our cases, which were remarkably similar, there was pronounced abdominal distension and acute diffuse tenderness due to peritonitis with secondary paralytic ileus, but little guarding. Meiling,³ who reported three puerperal cases, also noted pronounced abdominal distension and lack of guarding. In both of our patients appendicitis appeared to have been present before the onset of labour.

INTESTINAL OBSTRUCTION

Unlike acute appendicitis, which occurs uniformly throughout pregnancy, intestinal obstruction occurs more often during the puerperium than at any other time.⁶ The commonest cause is adhesions from a previous laparotomy, usually for acute appendicitis,⁷ which are most likely to trap bowel (or provide an axis

for a volvulus) during the changes in abdominal organ position that follow parturition. Volvulus of large bowel⁸⁻⁹ and of small bowel¹⁰ is seen occasionally during the puerperium.

During a normal puerperium there should be little central abdominal pain, and if pain continues, especially with nausea, vomiting, and abdominal distension, it should be regarded as abnormal. Owing to the relaxation of the puerperal abdomen it may be possible to visualise or feel distended loops of small or large bowel through the abdominal wall. There may be pronounced tenderness with little guarding, and auscultation during episodes of intestinal colicky pain may yield the essential sign of obstructive intestinal sounds. There need be no hesitation in using radiography to confirm the diagnosis in the post-partum patient.

The following special forms of post-partum obstruction should be remembered:

(a) Post-partum ileus¹¹ is rare and usually occurs after caesarean section. The proximal large bowel distends to the level of the splenic flexure but there is no mechanical obstruction at this point. Nevertheless, the caecum may become so tense that it may burst, when the outlook for the patient is poor; decompression of the caecum by caecostomy or aspiration usually results in recovery,¹²⁻¹³ and when in doubt, as in case 5, it is clearly safer to operate.

(b) The post-partum uterus either after spontaneous delivery or after caesarean section may fall back into the pelvis and obstruct the sigmoid colon at the level of the pelvic brim, causing a true mechanical obstruction.

(c) Strangulated diaphragmatic hernia is another form of intestinal obstruction particularly likely to occur in the puerperium. It is dangerous because abdominal signs may be entirely lacking. It should be suspected if, shortly after labour, the mother complains of epigastric pain, nausea, and breathlessness and signs are found in the left chest. The features of this condition were described by Thompson and Le Blanc.¹⁴

PERFORATION OF PEPTIC ULCER

Perforation of a peptic ulcer rarely occurs in the puerperium. Anderson¹⁵ first described such a case in 1942, when a 29-year-old woman developed abdominal pain a few hours after a normal delivery. Twenty-four hours later, when she was very ill, she had a distended abdomen with some slight tenderness but no guarding or rebound tenderness. She died two days later, and at necropsy a perforated duodenal ulcer with diffuse peritonitis was found. In 1952¹⁶ there was a report of a 41-year-old woman with a 10-year history of mild dyspepsia who, on the second day after a normal delivery, suddenly complained of abdominal pain and collapsed; there was pronounced generalised abdominal tenderness but no guarding or rebound tenderness. At laparotomy she was found to have a perforated duodenal ulcer. Our case 6 was first reported in 1969¹⁷ and still appears to be the only other reported case of a perforated peptic ulcer in the puerperium. Each showed a striking lack of muscle guarding.

CROHN'S DISEASE

There is dispute whether pre-existing Crohn's disease is affected by pregnancy. Fielding and Cooke¹⁸ showed that there was little risk of abortion, prematurity, stillbirth, or congenital abnormalities, and the Leeds group¹⁹ showed that only four out of 40 women had a relapse of their disease during pregnancy. It is unusual for Crohn's disease to present for the first time during pregnancy; when in 1962²⁰ a patient was described who developed peritonitis in the seventh month only six other documented cases could be found.

Cases similar to ours, occurring early in the puerperium, have been described.²¹⁻²³ All these patients began to have symptoms in the later weeks of pregnancy, and the diseased ileum appeared to have perforated, with formation of an abscess or peritonitis, in the days after delivery.

ACUTE PANCREATITIS

There is evidence of an association between pregnancy and pancreatitis, and a few cases have been described in the puerperium.⁴⁻²⁴ We have recently treated a typical case in a 21-year-old patient three weeks after delivery.

ACUTE CHOLECYSTITIS

There may be a predisposition to an attack of acute cholecystitis during the puerperium, and these attacks may require surgical intervention. Friley and Douglas²⁵ reported 21 cases seen during pregnancy and another 10 that arose within three weeks after delivery. Among these, tenderness and rigidity in the right upper quadrant were reported in eight, and a mass was reported in three. Six of the 10 patients needed surgical treatment.

OVARIAN CYSTS

Only about one pregnancy in a thousand will be complicated by the presence of an ovarian cyst, and only about half of these will present with torsion.²⁶ Among 164 pregnant women in Melbourne in whom an ovarian cyst was found the cyst exceeded 15 cm in diameter in 21, and of these only one was diagnosed as having twisted after delivery. Our patient (case 7) presented with a mass in the upper abdomen, presumably because the pedicle had become elongated during the growth of the uterus. Although the mass felt like an ovarian cyst, the odd position made this seem unlikely.

Conclusions

A surgical abdominal emergency is particularly dangerous during the puerperium. The patient may expect considerable abdominal pain and so not report her complaint to the doctor. The doctor may be inclined to reassure the patient because minor lower abdominal discomfort is common and surgical disease is rare. It is also easy to be misled by the presence of a few pus cells in the urine. Even when the patient is examined the symptoms and degree of tenderness seem to be out of keeping with the minimal muscle guarding.

All these factors have an additive effect in delaying diagnosis, and this delay is likely to be compounded when the patient is seen by different doctors on successive visits, as can happen in large and busy maternity units. There is a need for a high degree of awareness of these unusual and difficult cases, and of the importance of recognising departures from a normal puerperium. When this happens, frequent assessment by the same clinician should result in early diagnosis and expeditious surgical treatment.

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Occasional Survey

Bromocriptine treatment of female infertility: report of 13 pregnancies

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Summary

Thirteen pregnancies occurred in 12 women who were treated with bromocriptine for infertility. Pretreatment prolactin levels were recorded in 11 patients and were normal in three. Five patients had suspected pituitary tumours, and they received irradiation to prevent swelling of the pituitary and the consequent visual field defects caused by the pressure of the swollen gland on the optic nerve. Ten of the 13 pregnancies have come to term, and all the babies were normal. When a patient with a pituitary tumour developed a visual field defect in the 38th week of pregnancy labour was induced and the defect disappeared after delivery. No multiple pregnancies occurred and there were no major complications.

Introduction

Raised prolactin levels are usually associated with hypogonadism whether or not there is associated galactorrhoea. Bromocriptine (2 brom- α -ergocryptine, CB 154), a long-acting dopamine receptor agonist, lowers prolactin levels and this is associated with a return of normal ovarian function, even in patients with pituitary tumours.¹⁻⁷ An unresolved problem exists in patients with pituitary tumours, however. When gonadotrophin treatment is used to induce pregnancy in such patients there is a risk that visual field defects may develop from the swelling of the pituitary and consequent optic nerve compression.⁸⁻¹² This complication occurs during gonadotrophin therapy in at least

3% of cases.¹¹ Presumably the same risk exists in any patient with a pituitary tumour who becomes pregnant.

We report here our experience of 13 pregnancies in 12 infertile women who were treated with bromocriptine and discuss the management policy adopted in these patients, with particular reference to those suspected of having pituitary tumours.

Patients and methods

The 12 patients were first seen at St Bartholomew's Hospital between 1969 and 1974 with infertility (see table). Seven of them (cases 1-3, 6, 8, 10, and 12) have been referred to elsewhere.⁵ No patient had evidence of hepatic or renal disease and none had taken any drugs likely to raise prolactin levels except for an oral contraceptive in cases 8 and 9. None had evidence of acromegaly and all patients had normal thyroid function; only one patient (case 1) had a reduced ACTH reserve, and three (cases 2, 3, and 4) had a reduced growth hormone (GH) reserve when tested with insulin-induced hypoglycaemia. The patients' husbands were all normal on seminal analysis.

Galactorrhoea had been present in 10 of the 12 patients for eight to 96 months, and in one other patient it was found only on expression of the breast during routine examination.

Menstrual history—Nine patients had had amenorrhoea for six months to 16 years before treatment. Three patients had had irregular periods for four to five years before treatment. Infertility had been present for six months to 12 years.

Oestrogen-progestogen treatment—In two patients amenorrhoea supervened after combined oestrogen-progestogen treatment had been prescribed for irregular menstruation; in one spontaneous galactorrhoea appeared during this treatment, but it was not present in the other.

Normal prolactin levels—Three patients with normal serum prolactin levels were given bromocriptine; one had galactorrhoea in association with amenorrhoea, another had galactorrhoea with irregular periods, and the third had developed amenorrhoea after combined oestrogen-progestogen treatment and we thought it worthwhile to try bromocriptine as this often promotes fertility in patients who develop amenorrhoea, hyperprolactinaemia, and galactorrhoea after taking oral contraceptives.

MEASUREMENTS AND TESTS

All basal blood samples were taken between 9 and 10 am, at which time all dynamic function tests were started.

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