

MATERNAL DEATHS DUE TO "NON-OBSTETRIC" ACUTE ABDOMINAL CONDITIONS*

by

IVAN A. D'CRUZ, M.D. (Bom.), M.R.C.P. (Lond.), M.R.C.P. (Edin.)

S. G. BALANI, M.D. (Bombay).

J. H. FONSECA, M.D. (Bombay).

Of a series of 377 consecutive maternal deaths studied at the Lokmanya Tilak Municipal General Hospital (D'Cruz *et al*, 1967) over a 6 year period from 1-1-61 to 31-12-66, only 82 were due to purely "Obstetric" causes. Of the other deaths, there were 15 due to acute abdominal conditions which might be considered "Medical" or "Surgical". Among these we included not only those presenting with acute abdominal pain, but also conditions such as haematemesis and acute adrenal haemorrhage where the primary pathology was in the abdomen, though abdominal pain was not a prominent symptom. However, we excluded patients with gastroenteritis, diarrhoea, dysentery, infective hepatitis and typhoid because these diseases are not generally considered as acute abdominal emergencies. The fallacies and pitfalls in the clinical differential diagnosis of acute abdomen are well known; it is worth mentioning, therefore, that in

From Dept. of Medicine & Obstetric & Gynaecology, Lokmanya Tilak Municipal General Hospital, and Medical College, Sion, Bombay-22.

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12 of our 15 cases the diagnosis did not depend on a mere clinical guess, but was definitely established at laparotomy or autopsy.

Case Reports

(1) G. R., aged 26, para 3, had had an operation 18 months previously for typhoid perforation of the small bowel. She had delivered 25 days before her final admission. She gave a history of loose motions and low fever since delivery, but for 3 days before admission the diarrhoea had ceased, and was replaced by continuous pain all over the abdomen, vomiting and abdominal distension. On examination, there was generalised abdominal distension, tenderness and guarding. Fluoroscopy revealed a "Step-ladder" bowel pattern. Peristaltic sounds were very feeble. She was treated conservatively with antibiotics for 3 days, and then explored through a lower paramedian incision. The peritoneal cavity contained about 900 ml. of pus, and the peritoneum appeared inflamed. Two perforations were observed in the caecal wall. The perforations were sutured and the peritoneal cavity drained. Her condition deteriorated and she died later the same day. Autopsy was not done.

Post-Operative Diagnosis: Peritonitis following perforation of the cecum.

(2) S. M. G., 20 years old, primipara, was 6 months pregnant on admission. She had suffered from pain in the abdomen and frequency of stools for 1 month prior to admission. She delivered a still-birth, (610 gm.) 10 hours after admission. Three days later she was observed to have abdominal

distension and also tenderness and guarding which was maximum in the left iliac fossa. Examination per rectum revealed that the anterior rectal wall was oedematous and inflamed. Plain x-ray of the abdomen showed multiple fluid levels. On exploratory laparotomy the same day a mass of adhesions was seen surrounding the descending colon. There appeared to be multiple ulcers in the colonic mucosa, one of which had perforated. The whole colon was friable, and colostomy was done. However, the patient's condition remained critical and she died 24 hours later. Autopsy was not performed.

Post-Operative Diagnosis: Perforation of descending colon following ulcerative colitis (possibly amoebic in etiology).

(3) C. S., aged 35 (parity not recorded) had delivered 12 days previous to admission. There was a history of pain all over the abdomen, vomiting, and constipation since the previous day. She was moribund and a detailed history could not be obtained. Generalised abdominal distension was observed and the liver dullness was obliterated. Peristaltic sounds were not heard. The patient appeared dehydrated. The B.P. fell rapidly from 80 m.m. systolic to unrecordable levels and she died in spite of resuscitative measures.

Autopsy revealed a perforated ulcer in the pyloric part of the stomach, on the greater curvature.

Autopsy Diagnosis: Perforation of gastric ulcer.

(4) E.P., 27 years old (parity not recorded) had delivered 3 days before admission. She had a severe bout of haematemesis on the day of admission. She had had similar haematemesis 3 years previously and since then had often bled per rectum. On examination, her liver was 4 cms. below the right costal margin, and its surface was firm and nodular. Slight oedema was detected, but no jaundice. Her B.P. was 120/80 and hemoglobin 7 gm.%. Five hours after admission, she vomited a considerable amount of blood and did so again ten minutes later. She went into shock and in spite of blood transfusions and other resuscitative measures, died 7 hours after admission. Autopsy was not done.

Clinical Diagnosis: Haematemesis from bleeding varices secondary to cirrhosis of the liver.

(5) F. A. R., aged 30 (parity not recorded) had severe post-partum hemorrhage immediately after delivery, which required 3 blood transfusions. She then developed severe backache, widespread skin haemorrhages and jaundice. Her B.P. fell progressively, and she went into irreversible shock. She died 2 days after delivery.

At autopsy extensive retroperitoneal haemorrhage was seen extending from the pancreas down into the pelvis, and forwards into the mesentery. There was a large haematoma surrounding the head of the pancreas, and on section of the pancreas the haematoma extended along the whole length of the organ. The liver, spleen, uterus and other organs were essentially normal.

Autopsy Diagnosis: Acute haemorrhagic pancreatitis.

(6) L. S., 33 years old, para 4, was 9 months pregnant when she was admitted to hospital for labour pains. She delivered twins spontaneously, and appeared well until 3 A.M. the next day when she suddenly vomited 3 times and complained of chest pain and backache. There was no undue post-partum hemorrhage, and the uterus was well contracted. She lapsed into a shock-like state and died at 7.00 A.M. the same day. Autopsy revealed bilateral haemorrhages in the adrenal glands. All other organs were normal.

Autopsy Diagnosis: Bilateral adrenal haemorrhages.

(7) S. S., aged 28, para 5, was admitted at full term for labour pains. The next day she delivered normally a live baby weighing 2550 gms. The following day she began vomiting repeatedly. Her abdomen was markedly distended and peristalsis was feeble. She was treated conservatively, with some improvement over the next 4 days. On one occasion she vomited round worms. Then the distension again became severe, and distended loops of intestine were visible through the abdominal wall. Fluoroscopy showed multiple fluid levels, particularly on the left side of the abdomen. Vaginal

examination did not reveal any signs of puerperal sepsis. Exploratory laparotomy was scheduled, but before that she suddenly worsened and died 6 days after delivery. No autopsy was done.

Clinical Diagnosis: Intestinal obstruction of uncertain etiology.

(8) K. H., aged 27, had delivered at home 5 days prior to admission. She had not passed a stool since delivery, and complained of abdominal distension and vomiting for 2 days before admission. On examination there was generalised distension, guarding and tenderness of the abdomen. A right paramedian scar of a previous appendicectomy was observed. No peristaltic sounds were heard. Exploratory laparotomy was done the same day. The peritoneal cavity contained blood-stained exudate. The ileum was gangrenous at two sites. Resection and end to end anastomosis was performed. The post-operative course was stormy with high irregular fever and hiccups, and she died 5 days after the operation.

Post-operative Diagnosis: Gangrene of the small intestine following internal strangulation.

(9) S. B., aged 22 (parity not recorded) was admitted 3 days after delivery. She had been vomiting since the previous day and was in a weak and dehydrated condition. Vaginal examination revealed nothing abnormal. A few hours after admission she vomited blackish material resembling altered blood, and clinically showed typical signs of acute massive haemorrhage such as, pallor, sweating, air hunger, marked tachycardia and severe hypotension. Generalised abdominal distension and tenderness were also observed. Intensive resuscitative measures including blood transfusions were of no avail; she vomited blood again and died, 20 hours after admission. The clinical diagnosis was bleeding peptic ulcer. Autopsy revealed no pathology in the stomach, which contained 200 ml. of altered blood. The small intestine had numerous circumferential ulcerations of the mucosa, in some of which were seen the ruptured small blood vessels which constituted the bleeding points. The mesenteric lymph glands were enlarged and matted.

Autopsy Diagnosis: Bleeding from tuberculous ulcers of the small intestine.

(10) M. M. S., 32 years old, para 4, was 7 months pregnant when she was admitted in labour. She delivered a live premature baby (1500 gms.) 2 hours after admission. There was a history of abdominal pain and distension, intermittent diarrhoea and a lump in the right iliac fossa for a year previously. The lump palpable in the right iliac fossa was diagnosed as ileocecal tuberculosis. Over the next few days she developed the clinical picture of subacute intestinal obstruction, and died rather suddenly 4 days after admission. Autopsy was not done.

Clinical Diagnosis: Intestinal obstruction due to ileo-coecal tuberculosis.

(11) M. R. P., aged 25 (parity not recorded) was 8 months pregnant on admission. She had suffered from nausea and vomiting for 7 days, cough for 2 days, and was drowsy on admission. B. P. 130/90. Bilateral pulmonary rales were auscultated and irregular pyrexia was observed. Two days after admission she had several convulsions; her B.P. then was 120 to 130 systolic and 90 to 100 mm diastolic. Later the same day she delivered a macerated fetus weighing 1070 gms. She continued very ill for 4 days during which she was administered parenteral tetracycline and chloramphenicol. The blood N.P.N., sugar, bilirubin and the C.S.F. were normal.

At autopsy the left kidney was enveloped by a perinephric abscess which had burst into surrounding tissues. There was also an abscess in the left kidney. The middle lobe of the right lung and upper lobe of the left lung were affected by pneumonic consolidation which had progressed at places to abscess formation. The brain was normal.

Autopsy Diagnosis: Perinephric abscess and bilateral pneumonia.

(12) S. G., 25 years old (parity not recorded), had delivered 1 month prior to admission. She complained of vomiting, pain in abdomen and anuria for 1 day before admission. She was sweating and very restless. The abdomen was distended and tender all over. B.P. was 70/50. On catheterisation no urine was obtained. In

spite of pressor drugs she continued in shock and died 11 hours after admission. Autopsy revealed pus in the pelvic part of the peritoneal cavity. The stomach was enormously distended and filled most of the abdomen. The loops of bowel were very congested. The uterus was normal. The left ovary contained a dermoid cyst.

Autopsy Diagnosis: Acute dilatation of the stomach; pelvic sepsis.

(13) H. S. G., aged 33, para 8, was 7 months pregnant on admission. She complained of pain in the right hypochondrium and lower chest for 15 days, dyspnoea for 4 days, and vomiting for 1 day. Irregular pyrexia was present. Her right hypochondrium was tender. The diagnosis of acute cholecystitis was made and she was given penicillin and streptomycin for 2 days, and then tetracycline. Five days after admission there was no clinical improvement, and fluoroscopy showed an elevated right dome of the diaphragm. The diagnosis now appeared to be amoebic hepatitis or hepatic abscess, and chloroquine with emetine was administered. The patient delivered a premature baby weighing 1800 gms. which died after a few hours. About 17 hours after delivery the patient suddenly collapsed and died 5 hours later.

Autopsy showed about 200 ml. of brownish pus in the peritoneal cavity. The right pleural cavity contained a small amount of blood-stained fluid, and the right lung was adherent to the parietal pleura. The right lobe of the liver was occupied by a large abscess 10 c.m. in diameter, which had ruptured into the abdominal cavity at the postero—superior aspect of the liver.

Autopsy Diagnosis: Amoebic liver abscess rupturing into peritoneal cavity.

(14) D. S., 28 years old, para 3, was 7 months pregnant when admitted for severe pain in the lower abdomen and back, of 3 hours' duration. She had passed one loose stool and also complained of nausea. The cervical os was closed. A few hours later the abdomen was observed to be very distended and peristalsis was feeble. No tenderness or rigidity was present. She died later the same day, 17 hours after admission.

Autopsy revealed two liters of blood stained fluid in the peritoneum. The intestines were distended and congested, with some blackish gangrenous areas. The mesentery was congested and haemorrhagic. The mesenteric arteries were found to be blocked by thrombi. The appendix was black and gangrenous. Other organs were normal.

Autopsy Diagnosis: Mesenteric artery thrombosis with infarction of the intestines.

(15) L. A. K., aged 22 years, para 3, had delivered at home 4 days before admission. She had had fever and abdominal pain since delivery. Generalised distension and tenderness of the abdomen was noted. Peristalsis was present on admission, but later it became very feeble. Exploratory laparotomy revealed 1800 ml. of pus in the peritoneal cavity, which was drained. The small intestine as well as omentum were edematous, congested and gangrenous in places. The patient became delirious and semicomatose, and died 30 hours after admission.

Post-Operative Diagnosis: Mesenteric vessel thrombosis with infarction of the bowel.

Discussion

Several reviews have appeared on the various extra-genital abdominal emergencies that can complicate pregnancy (Journey and Payne, 1956; Stone and Folsome; 1955; Kark, 1965). Although all such complications are uncommon, they deserve the attention of the obstetrician for the following reasons:—

(1) They account for a significant number of maternal deaths in our series, approximately one-sixth as many as the purely "obstetric" deaths.

(2) The foetal mortality is also increased.

(3) The classical clinical signs of the acute abdominal condition may not be elicited because the enlarged pregnant uterus alters the position of other abdominal organs and makes

the palpation of abdominal tenderness and abdominal lumps difficult. Also, the stretched and lax abdominal wall in puerperal women may not show guarding or rigidity as readily as in non-pregnant individuals.

(4) Certain complications of pregnancy involving the uterus and its adnexa, such as tubal rupture, torsion of the fallopian tube, rupture of utero-ovarian vessels, and torsion of the pregnant uterus, may present with acute abdominal pain, thus being confused with extra-uterine causes of acute abdomen. During the puerperium, there is a tendency to attribute all lower abdominal pain or tenderness to puerperal sepsis, and to overlook other medical or surgical conditions.

Intestinal Obstruction: During pregnancy this has an incidence of 0.0014 to 0.0034% (Kark, 1965; Baker *et al*, 1953). In western countries the commonest causes are, peritoneal adhesions following previous abdominal operations, volvulus, and rarely neoplasms. Since most such cases are not due to lesions in the lumen or in the wall of the gut, but rather to external compression or displacement of the gut by changes in size of the uterus, the commonest periods for intestinal obstruction to occur are (a) in the fourth and fifth months when the uterus first becomes an abdominal organ, (b) in the eighth and ninth months, when the fetal head descends into the pelvis, and (c) after delivery, when the uterus contracts (Kark, 1965). In India, tuberculous strictures and adhesions still remain an important cause of intestinal obstruction.

The classical clinical picture of

intestinal obstruction is easily appreciated in early pregnancy, but near term colicky pains may be mistaken for labour pains, tenderness and rebound tenderness may not be clear cut, and intestinal distension is overshadowed by the distension already caused by the large pregnant uterus. An increasing abdominal girth, persistent vomiting, and fluid levels or distended bowel loops on fluoroscopy should alert the clinician to the diagnosis of intestinal obstruction.

Peptic Ulcer: Although it is customary for women having peptic ulcers to experience a relief of symptoms during pregnancy, perforation of a peptic ulcer can rarely occur. Sandweiss, in 1943, collected 10 instances of perforated peptic ulcer in pregnant women, all proven at autopsy (Sandweiss, 1943). Since then other similar cases have been reported (James, 1948; Horwich, 1958). In early pregnancy and in the puerperium diagnosis is simple, but in late pregnancy the typical guarding and rigidity may not be elicited, while the falling blood pressure and rising pulse rate may be attributed to uterine hemorrhage. In such circumstances the radiological detection of air under the diaphragm is a very important sign.

Acute Pancreatitis: Langmade and Edmondson reviewed 53 cases of pancreatitis during pregnancy reported previous to 1951, of which 38 were submitted to operation and 6 died. Although the management of pancreatitis during pregnancy is essentially conservative, a large proportion of cases have been subjected to laparotomy because other causes of acute abdomen which also present with sudden onset of epigastric pain,

nausea and vomiting could not be excluded clinically. A possible clinical clue to the diagnosis of acute pancreatitis is a history of recurrent attacks of abdominal pain and vomiting for a few days previous to the acute attack (Lunt, 1957). A very valuable investigation is the serum amylase estimation, which was raised in all 9 patients reported by Langmade and Edmondson.

Perforation of Large Gut: This is an extremely rare complication in western countries, and when it occurs in such countries is usually due to idiopathic ulcerative colitis or diverticulitis. In India, where amoebic and bacillary dysentery are extremely common, perforation of the caecum or colon is usually associated with extensive dysenteric ulceration. A possible amoebic etiology should always be kept in mind, since emetine must be administered as soon as the diagnosis is made or even suspected, and may be life saving.

Rupture of Liver Abscess: In view of the fact that amoebiasis is very prevalent in most tropical countries, it is surprising that there are almost no references to this complication during pregnancy. We have recently seen 3 cases in pregnant women, one of which was fatal (D'Cruz *et al*, 1967).

Massive Gastro-Intestinal Haemorrhage: The commonest causes of such haemorrhage are peptic ulcer and oesophageal varices. We had one case of the latter, associated with cirrhosis of the liver. Our other fatal case of massive haemorrhage bled from a rather unusual site; autopsy revealed multiple bleeding tuberculous ulcers of the small bowel.

Other Miscellaneous Acute Abdominal Conditions

We had two instances of superior mesenteric vascular occlusion, leading to gangrene of the gut and omentum. In one case the morbid anatomy was observed at autopsy and in the other at laparotomy. We could not find other similar reports in the literature.

Acute bilateral adrenal haemorrhage associated with a shock-like state is well known as a rare complication of meningococcal meningitis and other overwhelming infections, and is sometimes called the Waterhouse—Friedrichsen Syndrome. Our patient with this syndrome did not have any such infection, but had just delivered twins.

Other acute abdominal emergencies during pregnancy or puerperium, which have been reported in the literature but did not occur in our series, are acute appendicitis, rupture of the spleen or splenic artery, torsion of the spleen, rupture of the liver, Crohn's disease, pregnancy ileus, and rupture of the rectus abdominis muscle.

Summary

Fifteen maternal deaths occurred at the L.T.M.G. Hospital, Bombay, over a 6 year period (1961-66), due to "non-obstetric" acute abdominal conditions. Each of the 15 cases is briefly reported. There were 2 cases of perforation of the large gut, 1 of perforated gastric ulcer, 1 of bleeding varices and hepatic cirrhosis, 1 of acute pancreatitis, 1 of bilateral adrenal haemorrhages, 3 of intestinal obstruction, 1 of bleeding tuberculous

ulcers of the small intestine, 1 of perinephric abscess, 1 of acute dilatation of the stomach, 1 of ruptured liver abscess, and 2 of mesenteric vascular occlusion. In 12 of the 15 patients the diagnosis was established at autopsy or laparotomy.

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