SURGICAL COMPLICATIONS OF GASTRO-INTESTINAL TRACT IN PREGNANCY

by

K. Sankari, M.D., F.R.C.O.G.

Gastro-intestinal complaints are made frequently during pregnancy. Many patients are seen daily by the obstetrician complaining of nausea, vomiting, abdominal cramps, distension, constipation and pelvic pain. The patient accepts the symptoms as normal discomforts of pregnancy. Thus a delay in proper diagnosis can often be attributed to both the physician and the patient.

Material

During the 12 year period from 1955 to 1966, there were 12,010 deliveries in Dr. Balabhai Nanavati Hospital, Bombay. There were 15 cases who had gastro-intestinal complications in pregnancy. Table I shows the break down of the various diseases involved.

TABLE I

Gastro-intestinal complications

	No. of cases	No. operated upon.
Appendicitis ..	6	6
Intestinal obstruction		
(a) Small intestine obstruction ..	3	I
(b) Volvulous of sigmoid	I	I
Acute pancreatitis ..	2	..
Acute cholecystitis ..	I	..
Ulcerative colitis ..	2	I
Total ..	15	9

Hon. Gynaecologist and Obstetrician, Dept. of Gynec. and Obst., Nanavati Hospital, Bombay 56.

Paper read at the 14th All-India Obstetric and Gynaecological Congress held at Nagpur on 26/28th November 1967.

Acute Appendicitis

There were 6 cases of acute appendicitis complicating pregnancy, an incidence of 0.05 per cent of all pregnancies, which is comparable with that cited in previous reports. Hoffman and Suzuki (1949), reported a 0.1 per cent, while Priddle and Hasseltine (1951), reported 0.043 per cent of all pregnancies. Schelpert (1961), has reported 0.082 per cent in 60,734 deliveries. From these reports it is evident that pregnancy does not predispose to appendicitis.

Careful history taking revealed nausea with or without vomiting. In the first and second trimesters of pregnancy, pain usually began in the mid-umbilical area, later progressing to the right flank. Similar observations have been made by McCorriston (1963). In the last trimester, however, the pain frequently began in the right flank area, as was observed by West (1960).

Table II shows the details of the cases treated. The temperature ranged between 90 to 102°F. The white blood cell counts ranged between 11,000 to 22,000 per c. mm. In

that pregnancy by itself has no deleterious effect on the disease.

Acknowledgement

I wish to record my thanks to Dr. R. Dutta Chaudhuri, Superintendent of Chittaranjan Cancer Hospital for his permission to use the hospital records. I express my gratitude to Dr. S. Ghosh and Mr. R. P. Ghosh for their help in preparing this paper.

References

1. Graham, J. B., Sotto, L. S. J. and Paloucek, F. P.: Carcinoma of the Cervix, Philadelphia, 1962, Saunders, p. 211.
2. Kottmeier, H. L.: Carcinoma of the Female Genitalia, Baltimore, 1953, William & Wilkins p. 148.
3. Kottmeier, H. L.: Clin. Obst. & Gynec. 6: 975, 1963.
4. Sadugor, M. G., Palmer, J. P. and Reinhard, M. C.: Am. J. Obst. & Gynec. 57: 933, 1949.
5. Smith, I. H., Mackay, E. N. and Sellars, A. H.: Canad. Med. Ass. J. 84: 351, 1961.
6. Stone, L. M., Weingold, A. B. and Sall, S.: Am. J. Obst. & Gynec. 93: 479, 1965.

the first trimester the area of maximum tenderness was at McBurney's point, and later they complained of severe pain in the right middle third of the abdomen. Localised tenderness was present in 2 cases.

TABLE II

Details of the cases of acute appendicitis

	1	2	3	4	5	6
Age	31	28	26	22	27	32
Parity	III	II	I	I	II	IV
Stage of pregnancy ..	14 weeks	28 weeks	30 weeks	20 weeks	8 weeks	12 weeks
Past history ..	Previous history of pain in right iliac fossa	....	....	....	....	history of attack of appendicitis year ago.
Time Delay ..	24 hours	20 hours	18 hours	48 hours	24 hours	20 hours
Hospital Delay ..	No delay	4 hours	No delay	4 hours	8 hours	No delay
Operation .. .. Findings	Appendix perforated	Appendix inflamed	Appendix perforated	Slightly inflamed	Appendix hyperemic	Perforated Appendix
Outcome of pregnancy	Aborted	Went to term	Premature delivery	Pregnancy went to term	Pregnancy went to term	Aborted

In all cases right paramedian incision was made. In one case the incision was extended well above the umbilicus. This incision appeared adequate. Three patients had perforated appendix. The post-operative course was uneventful. The stump was buried in 5 cases. They all received antibiotics, gastric suction and intravenous fluids. There were no wound infections or wound dehiscences. There was some correlation between the intra-abdominal disease and the foetal outcome. All 3 with localised appendicitis went to term and delivered normally. All the 3 cases with perforations aborted within 48 hours.

Intestinal Obstruction

There were 4 cases of intestinal obstruction. The details are given in Table III.

One case was due to adhesive bands resulting from a previous operation for appendicectomy. It revealed a gangrenous loop of ileum about 5 feet from the caecum. Partial resection of ileum with end to end anastomosis was done. The patient died after 18 hours. Two other patients were treated conservatively with gastric suction, intravenous fluids and Antepar. They passed 18 and 22 worms respectively. They were discharged in a fit state and pregnancy went to term.

The fourth case came in with sudden acute pain in the lower abdomen with vomiting. The lower abdomen was tense and tender. The uterus was enlarged to 16 weeks' size. Her general condition was good. Under

TABLE III

Details of cases of intestinal obstruction

	1	2	3	4
Age	35	29	32	24
Parity	IV	III	I	II
Stage of pregnancy	16 weeks	8 weeks	30 weeks	14 weeks
Past history	History of laparotomy for appendicitis	History of ectopic pregnancy	History of vomiting round worms on the morning of admission	....
Lesion	Strangulation of ileum due to bands	Round worms obstruction	Round worm obstruction	Volvulus of sigmoid
Time delay	72 hours	24 hours	36 weeks	8 hours
Operation	Resection of strangulated gut	Conservative line of treatment + Antepar. Passed 18 worms	Passed 22 worms	Derotation of sigmoid
Outcome of mother	Died	Alive and well	Alive and well	Alive and well
Outcome of foetus	....	Alive	Alive	Alive

observation, the pain, abdominal distension and pulse rate increased. Enema was given with no result. Laparotomy revealed volvulus of the sigmoid. Derotation of the sigmoid was done and the colour returned to normal. The patient recovered completely and delivered normally at term

When pain awakens a patient or is severe enough to require narcotics for its relief, a definite cause for it must be found. In round worm obstruction, only conservative line of treatment should be done. There is no single sign which is pathognomonic of strangulation. Constant pain, especially of sudden onset (Evans and Bigger 1947) or tenderness suggested the diagnosis.

Acute Pancreatitis

There were 2 patients who came with acute pain in epigastrium, vomiting and shock. These patients were treated medically with gastric suction, attention to electrolyte imbalance, relief of pain and treatment of shock. Their serum amylase was 600 and 800 units respectively. Unfortunately, one patient died undelivered within 24 hours. The other patient recovered and delivered at term. Conservative treatment only should be done.

Biliary Tract Disease

A 6th para came with signs and symptoms of acute cholecystitis in the 24th week of pregnancy. The attack subsided with rest, low fat diet and pain releiving drugs. She delivered normally at term. Later on she had a cholecystectomy done.

Medical management during pregnancy is advised unless attacks are recurrent or there is empyema or threatened rupture of gall bladder or common bile duct obstruction.

Ulcerative Colitis

Ulcerative colitis does not affect the course of pregnancy or the foetal prognosis, but pregnancy is a calculated risk for a woman with the disease. There was one case of ulcerative colitis which was in a quiescent phase. She went to term and delivered normally.

The second case was seen during the acute phase. A 4th para, aged 34 years, was admitted as an emergency case with history of 5 months' amenorrhoea and severe diarrhoea for 20 days. She had 3-5 vomits per day. She complained of pain all over the abdomen. On examination she was markedly dehydrated. The blood pressure was 130/80 mm. Hg., pulse rate 130 per minute and temperature 102°F. Abdomen was distended and coils of intestines were visible (standing up). X-ray showed fluid levels suggesting subacute intestinal obstruction. Peristalsis was heard. She was treated conservatively with continuous gastric suction, intravenous fluids and antibiotics to control the infection. On the fourth day after admission she aborted. On the fifth day she became very toxic. Laparotomy was suggested with a view to relieve the subacute obstruction.

On opening the abdomen it was found that the caecum, ascending colon, transverse colon and descending colon were gangrenous. Ileostomy and pelvic colostomy were done. The whole of the gangrenous part of the large intestines was excised. Pathological examination of the gut showed ulcerative colitis. There was no evidence of amoebic dysentery or any other bacterial infection. The patient died 18 hours after the operation. Bhatt (1965) has reported a similar case.

Discussion

Pregnancy does not seem to be a predisposing factor in major complications of gastro-intestinal tract. Acute appendicitis and intestinal obstruction account for most of the complications. The incidence of acute appendicitis varies from 1 in 1000 to 1 in 1500.

The symptoms of appendicitis are the same as in the non-pregnant state. The abdominal pain and tenderness are likely to be higher and more lateral because of the elevation and displacement of the appendix. The inflamed appendix commonly ruptures if prompt surgical therapy is not instituted, walling off of the resultant peritonitis is hampered during the latter part of the pregnancy because the omentum is denied access to the appendicular area by the pregnant uterus. There is a marked deterioration in the prognosis of the mother and the foetus when operation is not performed within 24 hours after the onset of symptoms. Hence early surgical intervention should be employed in all suspected cases of appendicitis. A right paramedian incision is the best in that it can be easily extended upwards and downwards, the initial incision being made with consideration of the maximum point of tenderness. In the second and third trimesters, a high muscle splitting incision centered over the point of maximum tenderness, usually at the level of umbilicus gives access to the appendix.

Labour may be allowed to progress normally following an appendicectomy. If the incision is still not healed, the second stage may be shortened by the use of forceps. Only foetal distress should call for intervention. Extraperitoneal caesarean is preferable to the usual lower segment operation.

There was no case of perforated peptic or gastric ulcer in this series. Clark (1960) found that of 118 women with peptic ulcer before pregnancy, 44.8 per cent became symptom free during pregnancy, 43.4 per cent improved and only 11.8 per cent failed to improve. Lindell and Tera (1962) reported the first case of perforated ulcer where both the mother and baby survived. They found a total of 14 cases in the literature. Munshi (1960) reported one case of perforation of peptic ulcer from Ahmedabad. Prompt intervention on the establishment of the diagnosis is the most important factor in minimising maternal and foetal wastage.

Intestinal obstruction during pregnancy is less frequent as compared to acute appendicitis. Smith and Bartlett (1940), at Boston lying-in hospital, found 1 case of intestinal obstruction in 66,431 deliveries.

Adhesions, volvulus and intussusception are common causes of intestinal obstruction in pregnancy. Hansen (1941) found that 25 per cent of patients with obstruction had a previous operation but Morris (1965) found 61 per cent. If an intussusception is found there is usually an initiating neoplasm (Baker *et al* 1953), Chaffin *et al* 1937) or, Meckel's diverticulum (Gay *et al* 1953), Svesko and Pisani (1960). Morris (1965) has reported an intussusception of Meckel's diverticulum in pregnancy. Strangulation of internal hernia has been reported by Morton and Hibbard (1959) while strangulated diaphragmatic hernia has also been described (Penman, 1951).

Five cases of volvulus have been reported by Hamlin and Palermino (1966). The one common predisposing factor in all cases was a previous abdominal surgery with associated adhesions. Pre-opertive diagnosis of volvulus is seldom made from history alone. The overlying pregnant uterus makes palpation difficult. A flat plate of abdomen may show evidence of obstruction on a basis of gaseous distension and fluid level. Repeated non-productive or failed enemas should make one suspicious of obstruction. A barium enema is very helpful when the large bowel is involved. The characteristic mucosal pattern of twisting may be seen as the barium stops at the site of torsion (Whitakar 1958).

The diagnosis of acute pancreatitis is difficult. Serum amylase levels and peritoneal aspiration may assist diagnosis. Chakravorty and Harrison Lay (1963) expect serum amylase levels of 200-800 units in cases of acute pancreatitis but in one of their own cases an immediate post-operative reading was normal. Appearance of fluid in the left costophrenic angle is said to suggest pancreatitis if pneumonia can be excluded (Zollinger and Kinsly 1964). In as much as biliary disease is concomitant with pancreatitis in a number of cases, roentgen examination

of biliary tract is advised post partum.

Acute ulcerative colitis is usually made worse by pregnancy, and especially by an unwanted pregnancy. Till the disease becomes quiescent, pregnancy should be avoided. If conception occurs during the active phase, then therapeutic abortion may be necessary depending upon the severity of the condition. In the chronic or quiescent phase there is a chance of its recrudescence, usually in the first trimester, or early puerperium. If this occurs, the usual therapy of blood transfusion, antibiotics and cortisone should be given.

Summary and Conclusions

Acute appendicitis was the most common abdominal surgical emergency during pregnancy. The incidence of intestinal obstruction due to adhesions is increasing due probably to more laparotomies in young women. Sedatives should be withheld till the diagnosis is made. Diagnosis is difficult and ancillary tests may not help. Initial erect and supine x-ray may be taken. If obstruction is confirmed, laparotomy after rapid and adequate preparation of the patient is essential. Strangulation cannot be excluded prior to operation. There should be no doubt about intervening from the point of view of pregnancy. The risk of abortion or premature birth is completely secondary to peritonitis.

Acknowledgements

My thanks are due to the consultant surgeons of the hospital who helped in the diagnosis and treatment of these patients and to the Superintendent for permission to use the hospital records.

References

1. Baker, A. H., Barnes, J. and Lister, U. G.: J. Obst. Gynec: Brit. Emp. 60: 52, 1953.
2. Bassett, J. W.: Am. J. Obst. and Gynec. 82: 828, 1961.
3. Bhatt, R. V.: J. Obst. and Gynec. India, 15: 194, 1965.
4. Chaffin, L., Mason, V. R. and Slemmons, J. R.: Surg. Gynec. Obst. 64: 811, 1937.
5. Chakravorty, A. P. and Harrison—Levy, A.: Brit. J. Clin. Pract. 17: 131, 1963.
6. Clark (1960) in Guttmacher and Rovinsky (1960) p. 174.
7. Evans, E. I. and Bigger, I. A.: J.A.M.A. 133: 513, 1947.
8. Gay, B. B. Jr., Leigh, T. F. and Rogers, J. V.: J. Med. Ass. Ga, 42, 15, 1953.
9. Guttmacher, A. F. and Rovinsky, J. J.: Medical Surgical and Gynaecological Complications in Pregnancy, 1960, William Wilkins, Baltimore.
10. Hamlin, C. H., Palermino, D. A.: Am. J. Obst. and Gynec. 94: 1147, 1966.
11. Hansen, F. A., J. Iowa, St. Med. Soc. 31: 237, 1941.
12. Hoffman, E. S. and Suzuki, M.: West. J. Surg. 57: 150, 1949.
13. Lindell, A. and Tera, H.: J. Obst. & Gynec. Brit. Comm. 69: 493, 1962.
14. McCorriston, C. C.: Am. J. Obst. and Gynec. 86: 593, 1963.
15. Morris, E. D., J. Obst. & Gynec. Brit. Comm. 72: 36, 1965.
16. Morton, J. H. and Hibbard, L. T.: Obst. and Gynec. 14: 214, 1959.

17. Munshi, P. H.: J. Obst. and Gynec. India, **10**: 372, 1960.
18. Penman, W. E.: West, J. Surg. **59**: 622, 1951.
19. Priddle, H. D. and Hesseltine, H. C.: Am. J. Obst. and Gynec. **62**: 150, 1951.
20. Schelpert, J. W., III: New York J. Med. **61**: 4032, 1961.
21. Svesko, V. S. and Pisani, B. J.: Am. J. Obst. Gynec. **79**: 157, 1960.
22. West, R. T.: Am. Surgeon **26**: 425, 1960.
23. Whitaker, W. G. Jr. and Howell, T. S. Jr.: Am. Surgeon **24**: 753, 1958.
24. Zollinger, R. M. and Kinsly, D. L.: Am. Surgeon, **30**: 1, 1964.