RUPTURE OF RECTUS ABDOMINIS MUSCLE DURING PREGNANCY

BY

RUFUS C. THOMAS, F.R.C.S.Ed., M.R.C.O.G.

Obstetric Consultant, County Borough of Croydon

Rupture of the rectus abdominis muscle is a very rare complication of pregnancy. Mr. T. J. Shields, librarian of the British Medical Association, to whom I am indebted for looking through the literature, was able to find nine instances, of which seven were recorded in foreign journals, and two—Hobbs (1938) and Ashkar (1939)—were published in this country.

Two Cases in the Literature

The patient described by Hobbs was a 6-para, almost at term, who had had a cough for a month, associated with occasional pain in the left upper abdomen. Following a bout of coughing she had a sudden severe pain in the left side of the abdomen, and was admitted to hospital about twelve hours later in a condition of collapse. She died in less than an hour, before a blood transfusion could be given. Necropsy revealed three pints of blood and clot in the sheath of the left rectus, with one large recent tear in the posterior surface of the muscle at the junction of the lower and middle thirds, and evidence of older tears and haemorrhages in the upper segments. Hobbs concluded that the vessel involved was the deep epigastric artery. The uterus contained a 9½-lb. foetus and some excess of liquor amnii.

Ashkar's patient was an 8-para, five months pregnant. She, too, had had respiratory trouble in the form of acute bronchitis a fortnight previously, but the acute abdominal pain associated with the muscular lesion occurred while she was sweeping the floor. A large blood-clot was removed from the right rectus sheath. A transverse, ragged, and incomplete tear was found in the muscle at the level of the umbilicus. This was sutured, and the patient made an uneventful recovery, the pregnancy proceeding to normal delivery at term.

It will be seen that, except for the difference in the duration of the two pregnancies, there is a close similarity in the train of events in the above patients. Both had coughs for some time before the final rupture of the muscle, though in the second case there was the added exertion of sweeping the floor. The muscle gave way in each patient at the umbilical level, which corresponds with the tendinous intersection between the lower and middle thirds. This is about the level of the lower edge of the posterior portion of the rectus sheath, the semilunar fold of Douglas, over which the deep epigastric artery passes before entering the deep surface of the muscle. The pathology of the muscular rupture seems very similar to that met with in rupture of the quadriceps extensor muscle after slipping off a curb or step.

The Present Case

The case I now record was a 3-para who had attended the Croydon County Borough ante-natal clinic from the ninth week of the present pregnancy. Her previous children had been 9 lb. and 10½ lb., delivery in each instance being spontaneous. She had remained well in the third pregnancy until the 36th week, when she had a cold. Two days later, on March 19, 1937, she went to see her own doctor because of a pain in the right side of the abdomen. He examined her the next day, when the pain had become acute. She was admitted to Mayday Hospital at 10.50 a.m. on March 20.

On examination she was complaining of acute abdominal pain, chiefly on the right side, but the whole of the abdomen was rigid. The pulse rate was 92, and the temperature 97°. She looked pale and somewhat shocked. Palpation of the abdomen showed generalized tenderness, but foetal parts could not be felt, nor could the foetal heart be heard. There was no vaginal bleeding. A catheter specimen of urine showed no albumin. The blood pressure on March 17 was 116/80 mm. Hg. A diagnosis of concealed accidental haemorrhage was made, and in view of her condition the membranes were ruptured under general anaesthesia. About a pint of liquor amnii was let out, and was found to be not blood-stained. The os uteri admitted one finger, and the vertex was presenting. It was not possible to say whether labour had actually started, but a vulsellum forceps was attached to the foetal scalp and a 1 lb. weight applied to stimulate labour. During the next twelve hours her condition became slowly but steadily worse, the pulse rate rising to 140. The abdominal pain was increasing, but there were no signs of labour having begun. In view of the deterioration in the general condition it was decided to empty the uterus by Caesarean section. Under general anaesthesia a right-sided pararectal subumbilical incision was made. On opening the sheath of the right rectus muscle it was found to be full of fresh blood-clot, which extended from the symphyseal region right up to the ensiform cartilage, and in the umbilical region had spread over to the area between the

peritoneum and the left rectus muscle. The right rectus muscle appeared to be almost completely disorganized. No definite bleeding point could be seen. Nearly two pints of blood-clot was removed from the immediate area around the incision. I was now in somewhat of a dilemma as to the further procedure. It was certain that labour would start very soon, and if delivery per vaginam was allowed there was considerable risk of the sutured abdominal wall giving way. The uterus was therefore evacuated by a lower-segment Caesarean section. The foetus was dead but not macerated, and I think there can be no doubt that its death was the result of the maternal shock. The uterus and abdominal incisions were closed in the usual way, but a corrugated drain was placed within the sheath of the right rectus muscle from the umbilical region to the suprapubic end of the incision. Recovery was without further incident, but the clot which had been left in the upper portion of the rectus sheath could be felt as a hard mass for some months after.

The patient had sustained a third-degree perineal laceration during the birth of her first child that had never healed, and she had had practically no anal control for eight years; there was a marked cystocele as well. In March, 1938, she was readmitted, and I did an anterior colporrhaphy and posterior colpoperineorrhaphy with reconstruction of the anal canal, followed a month later by sterilization by excision of both Fallopian tubes. The incision for the latter operation was a left pararectal subumbilical one, and I was therefore not able to see the condition of the right rectus muscle. By palpation it appeared to be very deficient, but no trace of the mass of blood-clot in its upper part could be felt. Some adhesions between the peritoneum and the omentum had to be separated, but the abdominal cavity was otherwise normal. She again made an uneventful recovery, and regained almost perfect anal control. Her joy and gratitude over this result, after nine years of incontinence, were pathetic. Her only complaint after getting up was a feeling of abdominal discomfort, which was relieved by the fitting of an abdominal belt.

Summary and Discussion

A case of rupture of the rectus abdominis muscle during pregnancy is reported. The records of two previous instances of the same condition are referred to, and it will be seen that there is great similarity in the train of symptoms in the three cases. All had had respiratory trouble just before the acute condition occurred; all were multiparae, in whom it is probable that the rectus muscle had been weakened by previous pregnancies, the muscle finally giving way at the weakest point—the tendinous junction between the lower and middle thirds—the rupture being precipitated by sudden abdominal strain. The artery involved was almost certainly the deep epigastric, which passes into the deep surface of the rectus muscle just above the umbilical level.

The condition is rare, and can give rise to difficulties in diagnosis. Hobbs does not state what he thought the probable diagnosis was, but only that the condition of his patient suggested a severe haemorrhage, and she died in less than an hour after admission. In Ashkar's case the preliminary diagnosis was of an ovarian cyst with a twisted pedicle, the diagnosis being based on the sudden acute abdominal pain, the presence of a mass high up in the abdomen, tenderness and muscular rigidity, fever, and leucocytosis. In my case the signs closely simulated those of concealed accidental haemorrhage. Though my decision to empty the uterus was based on a wrong diagnosis, the fact that I acted upon it probably averted a fatal issue.

I have seen one other case of traumatic rupture of the right rectus muscle, which I reported in the *Lancet* in 1933. It occurred in an Indian port labourer, as a result of being pinned between the buffer of a railway truck and a bag of sugar which had been swung by crane from a barge. In this case, also, the rupture occurred at the level of the umbilicus, but the whole abdominal wall was burst open, resulting in the extroversion of several feet of small intestine and the crushing of several coils of adjacent gut. There was in this case singularly little shock and no haemorrhage worth mentioning. He made an uninterrupted recovery after resection of six feet of small gut and resuture of the disrupted abdomen, which was closed without drainage.

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REFERENCES

- Ashkar, P. A. (1939). *Lancet*, 2, 934.
Hobbs, F. B. (1938). *British Medical Journal*, 1, 895.