SUMMARY

A rare case is presented of total anomalous pulmonary venous return associated with both great vessels originating from the right ventricle (partial transposition). The nature of both malformations is described. Clinical, hemodynamic and pathologicoanatomic findings are reviewed. It is felt that electrocardiographic findings, cardiac catheterization and angiocardiography might be of diagnostic help in establishing the nature of such combined malformations.

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RÉSUMÉ

Nous avons discuté un cas d'anomalie de retour veineux pulmonaire total associé à une transposition vasculaire partielle, l'aorte et l'artère pulmonaire venant du ventricule droit.

Nous avons présenté le tableau clinique et hémodynamique de ce syndrome complexe ainsi que les faits anatomopathologiques. Nous croyons que l'électrocardiogramme, le cathétérisme cardiaque et l'angiocardiogramme peuvent aider à établir le diagnostic de ces malformations complexes.

Spontaneous Rupture of the Spleen in Pregnancy

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SPONTANEOUS rupture of the spleen is now recognized as a rare but definite complication of pregnancy. A recent case seen in the author's practice prompted a brief review of this subject.

A 23-year-old Italian woman, para 2, gravida 5, was admitted to St. Joseph's Hospital, Hamilton, in the late evening of October 3, 1962.

Her last normal menstrual period occurred on July 3, 1962. During the first weeks of her pregnancy she had experienced considerable nausea and vomiting, but these symptoms subsided a month or so before her admission to hospital.

She stated that she was in her usual state of health until about 6 p.m. on October 3, when she suddenly became nauseated and began to retch. Almost immediately afterwards she experienced severe pain in the epigastrium and left upper quadrant. The pain was steady and gradually increased in severity. After about four or five hours she began to complain of pain in the left shoulder which was even more severe than the abdominal pain.

There had been no vaginal bleeding or spotting since her last normal period in July. Her bowel movements had been quite regular and there were no urinary symptoms. Repeated questioning failed to reveal any history of even minor trauma.

The patient was a pale, thin young adult woman who appeared to be in acute distress. Her pulse was regular at a rate of 105 per minute and her blood pressure was 110/70 mm. Hg.

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The abdomen was not grossly distended. There was generalized tenderness throughout the entire abdomen, more pronounced in the left upper and lower quadrants. There was marked voluntary rigidity of the left rectus abdominis muscle, and rebound tenderness could be elicited over the entire abdomen. No mass could be palpated. The liver and spleen were not palpable. Bowel sounds were active.

Pelvic examination revealed a parous introitus. The uterus was enlarged to the size of a two to three months' pregnancy. There was acute pain on moving the cervix. Marked tenderness could be demonstrated in both fornices and there was some fullness in the left adnexal region.

Laboratory findings included a normal urinalysis, a hemoglobin level of 72%, and a white blood cell count of 19,000 per c.mm.

A diagnosis of spontaneous rupture of the spleen was entertained, but because of its rarity, and because of the findings on pelvic examination, ruptured ectopic pregnancy seemed a more likely preoperative diagnosis.

Shortly after admission, operation was performed through a lower left paramedian incision. Approximately 500 c.c. of free blood was found in the peritoneal cavity. The uterus was enlarged, soft, and obviously gravid. Both tubes and ovaries appeared normal. The incision was then extended upward almost to the left costal margin. Several large clots were found in the region of the hilum of the spleen. The spleen seemed slightly enlarged and there was a recent linear tear approximately 3 cm. in length on its visceral surface. Splenectomy was carried out and the patient made an uneventful recovery. She was discharged from hospital on her tenth postoperative day. Her pregnancy continued undisturbed.

The pathological specimen consisted of a spleen weighing 224 g. with a laceration 3 cm. in length and 1 cm. in depth on its visceral surface. Microscopic examination revealed recent hemorrhage in the region of the laceration, but there was no specific lesion to account for the spontaneous rupture. Subsequent blood smears, heterophil antibody tests, and serological tests for syphilis were normal.

DISCUSSION

At least 50 cases of rupture of the spleen in pregnancy have been reported and doubtless many more have occurred. From a review of the literature it would appear that the majority of these were cases of spontaneous rupture of the normal spleen.

Spontaneous rupture of the normal spleen has always remained a surgical enigma. Indeed there are many authorities who truly doubt that the condition exists, and feel that most cases represent delayed rupture following minimal or forgotten trauma. When one considers the frequency of delayed rupture of the spleen following trauma, such a view seems justified.

However, in many of the cases reported, thorough questioning failed to reveal any evidence of even minor trauma, and these have therefore been classified as cases of spontaneous rupture.

Sparkman,[7] in an excellent review of 44 cases of rupture of the spleen in pregnancy, categorized the etiology of the condition in this series as follows: (1) traumatic rupture—seven definite, seven questionable cases; (2) rupture of diseased spleens—five cases; (3) toxemia—four cases; (4) spontaneous rupture—21 cases.

The diseased spleens included three with malaria and one with Banti's disease, one with an old splenic abscess, and one with thrombosis of the splenic vein. Other writers have indicated that infectious mononucleosis also predisposes to spontaneous rupture of the spleen. Four cases of splenic rupture occurred in patients with toxemia of pregnancy in which hypertension, thrombosis and diffuse angiitis are said to predispose to vascular rupture.

Suggested etiological factors in cases of true spontaneous rupture include internal trauma, as proposed by Barnett (i.e. occasioned by coughing, vomiting, coitus in the latter stages of pregnancy and the bearing-down efforts of the second stage of labour). In the case described in this report vomiting may well have been the initiating factor.

Many writers have suggested that the enlargement of the spleen that occurs in pregnancy may predispose to rupture from trivial trauma, but it has never been proved that the spleen actually does enlarge at any stage in pregnancy. On the other hand, it has been well proved that the blood volume increases as much as 45% in the last trimester of pregnancy, and this has been considered as a possible factor in splenic rupture.

Another widely held theory is that rupture of a small intrasplenic aneurysm may occur, with all trace of the aneurysm being destroyed by the hemorrhage, thus preventing its discovery by the pathologist. Certainly larger aneurysms of the splenic artery are more prone to rupture during pregnancy, and even spontaneous rupture of the splenic vein has been reported.

Finally, disturbance of the normal position of the spleen by the gravid uterus, particularly where the splenic pedicle is short, has been cited as a possible causative factor in this condition.

Spontaneous rupture of the spleen is most frequently encountered in the last trimester of pregnancy, though cases have been reported during the early months as well as during labour and in the puerperium. The signs and symptoms are identical to those in cases of traumatic rupture of the spleen in non-pregnant patients and will not be discussed in detail in this report.

A correct preoperative diagnosis of spontaneous rupture of the spleen is rarely made. In the first trimester it is usually confused with ruptured ectopic pregnancy. In the last trimester abruptio placentae and rupture of the uterus are the two most likely differential diagnoses. However, in the case of rupture of the spleen the uterus is not tender or hard, and fetal heart sounds can usually be heard. The presence of referred pain in the left shoulder area should always alert the examiner to the possibility of splenic pathology.

Once the diagnosis of rupture of the spleen has been made, the only effective treatment is restoration of blood loss and immediate splenectomy. In the latter stages of pregnancy a preliminary Cesarean section is necessary to empty the uterus and provide access to the spleen. Without splenectomy the prognosis is almost always fatal. In Sparkman's series, all cases in which splenectomy was not performed terminated fatally. These included four patients who underwent laparotomy but in whom the source of the bleeding was not found.

SUMMARY

A case of spontaneous rupture of the normal spleen complicating pregnancy is described. The various etiological factors have been reviewed and the differential diagnosis and treatment have been indicated. Although the condition is rare, it is lethal and should always be considered in the differential diagnosis of every pregnant woman who develops an acute abdominal catastrophe, particularly if there is evidence of internal hemorrhage.

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