POST-TRAUMATIC INTERMITTENT SPLENIC HEMORRHAGE

A CASE REPORT*

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TRAUMATIC RUPTURE of the spleen usually has a well-marked acute or delayed clinical course. Case reports and literature reviews have emphasized the traumatic background of splenic rupture. It has occurred following a great variety of injuries to the body, particularly to the left side of the thorax or abdomen. Usually the sequence of events leading up to delayed rupture of the spleen was closely correlated with the initial trauma. McIndoe,[2] Puestow,[3] and Rousselot[4] have indicated the time interval to be two to 21 days in the majority of cases analyzed.

Cases thus far reported have been diagnosed by a history of recent trauma and episodes of syncope, by physical evidence of hemorrhagic shock, left upper quadrant tenderness, rigidity and by roentgen ray evidence of a medially displaced gastric air cap. Paracentesis has been used to demonstrate free blood in the peritoneal cavity. In instances of extensive trauma respiratory and thoracic findings have been present.

The spleen with delayed hemorrhage showed varying degrees of pulp maceration associated with variable capsular tears. In most instances, there was some amount of newly organized blood clot under or about the splenic capsule. Localized extracapsular collections were rare. Free blood was usually present in the peritoneal cavity.

This case presented several unusual features of splenic pathology: the time relation to trauma, the type of rupture and the diagnosis by clinical findings and serial roentgenograms.

CASE REPORT

A 37-year-old colored male, mechanic's helper, entered the hospital on December 13, 1951, with the presenting complaints of pain in the left chest, cough, chills and fever of 3 weeks' duration. The patient stated that he noticed occasional sharp pains beginning in the lower left chest radiating to the epigastrium since August, 1951. These episodes occurred at weekly intervals. On November 21, 1951, he felt faint and dizzy while riding on a street-car. He walked home with difficulty. He developed a dry cough associated with vague pains in the left lower chest and abdomen aggravated by deep respiration. These symptoms became more persistent and severe 7 days prior to admission. A productive cough raised yellowish sputum. He had no hemoptysis or dyspnea. During this time, the patient lost 6 to 8 pounds of weight and had associated anorexia and occasional vomiting. A private physician performed a left thoracentesis, removing some bloody fluid. The patient entered this hospital on the following day.

In July, 1949, the patient was injured in a street brawl. The injuries were extensive enough to require 2 months' hospitalization. The left eye injured at this time was enucleated. In November, 1949, he was struck on the left side by an automobile. He was hospitalized for one day for observation. His family history was non-contributory, except that both parents and one sister died of pulmonary tuberculosis.

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FIG. 1

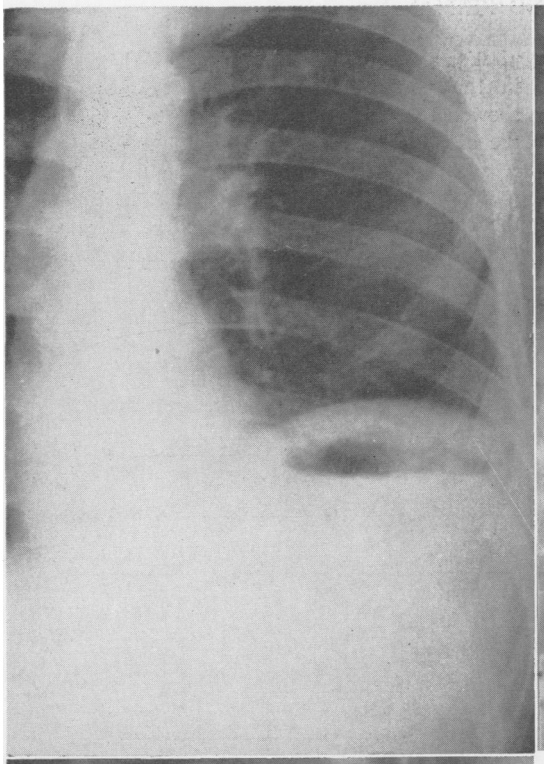
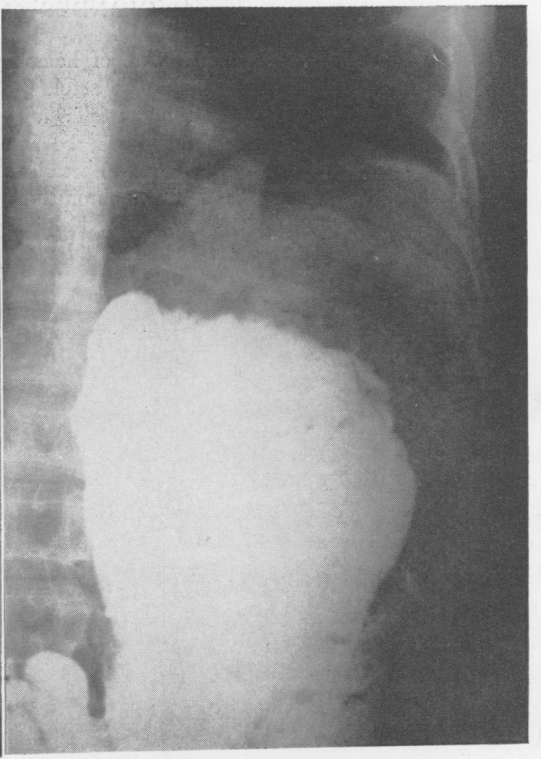


FIG. 2



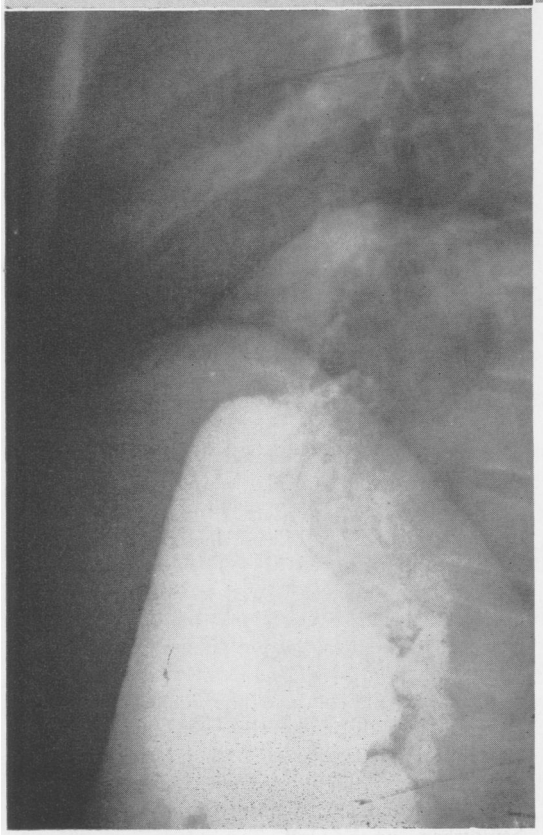


FIG. 3

FIG. 1.—Postero-anterior roentgenogram January 3, 1952, shows clearing of the pulmonary reaction; the outline of the diaphragm is distinct demonstrating that the mass and fluid level are beneath the diaphragm.

FIG. 2.—Barium meal roentgenogram, antero-posterior, Trendelenberg position. The mass extrinsic to the stomach is further outlined.

FIG. 3.—Barium meal roentgenogram, left lateral, Trendelenberg position. The mass extrinsic to the stomach is further outlined.

Physical examination on admission showed an acutely ill colored male, temperature 103°F., pulse 110, blood pressure 96/64. The patient was alert. The left eye was replaced by a prosthesis. The bony thorax appeared normal—its expansion was decreased on the left. The left lower posterior lung field presented diminished tactile fremitus, diminished resonance and impaired breath sounds. The heart appeared normal in size. The liver was not palpable. There was dullness to percussion in the left hypochondrium extending into the left flank and a sense of increased resistance in the left upper abdominal quadrant. The edge of the spleen could not be felt.

On admission the patient's white cell count was 19,000 with 89 per cent neutrophiles. His red

cell count was 3,000,000 with 9.3 Gm. of hemoglobin. The urinalysis was normal. The serology was negative. Red cell count on the day following admission was 2,080,000 with hemoglobin below 7.5 Gm. and white cell count of 12,200. Bacteriologic cultures of sputums and tracheobronchial secretions obtained by bronchoscopy showed alpha streptococci. Dark bloody thoracentesis fluid was

FIG. 4.—Gross appearance. The spleen occupies the lower left aspect of the mass.

bacteriologically negative. The chest roentgenogram on admission illustrated an opacity in the lower left lung field.

Hospital course: Following a brief episode of faintness with evidence of hemorrhage the day after admission, the patient received a blood transfusion of 1000 cc. Four days after admission and following two aspirations of bloody fluid from the left thorax, a chest roentgenogram indicated a fluid level in the lower left chest. This was considered at the time to represent a loculated hemothorax. After additional left thoracenteses in the ensuing 2 weeks, roentgenograms (Fig. 1) revealed resolution of the pulmonary infiltrate over the left diaphragm which then could be clearly recognized. A total of 1500 cc. of old bloody fluid was removed through the left chest in the course of 6 aspirations in the ensuing 2 weeks. The aspirations were done through the eighth interspace in the posterior axillary line. Barium swallow showed the separation of the gastric air cap from the diaphragm and the mass with its air cap. A barium meal with the patient in the Trendelenberg position (Fig. 2), demonstrated the depression of the cardia of the stomach, and on lateral view (Fig. 3), the form of the extrinsic mass displacing the stomach anteriorly.

On January 5, 1952, exploratory laparotomy was carried out through a left paramedian incision. A round, smooth mass (Fig. 4), incorporating the

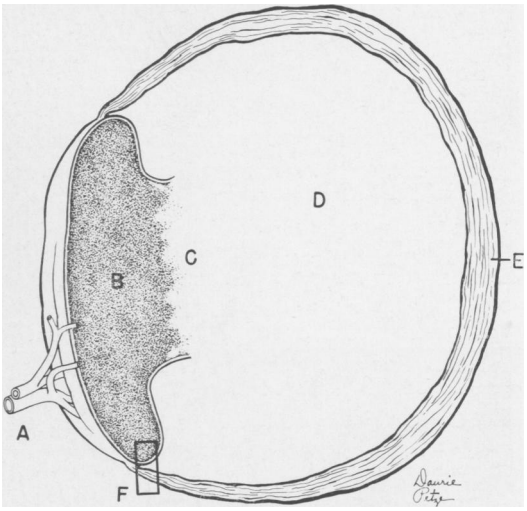


FIG. 5.—Diagram of the cross section of spleen and hematoma. (A) splenic hilus; (B) spleen; (C) rupture; (D) hematoma; (E) fibrous capsule.

spleen was found. This was dissected from the diaphragm, left lobe of the liver, stomach and lateral abdominal wall. The splenic pedicle was ligated and the mass removed. The patient's postoperative course was complicated by a wound infection and an incomplete small bowel obstruction for which he was reoperated upon. His recovery thereafter was uneventful.

Pathologic Report. The specimen was a globular mass 25 x 17 x 15 cm., including the spleen, which itself measured 13 x 11.5 x 8 cm. When sectioned, the mass appeared to be a large cystic cavity filled with new and old blood. The spleen was incorporated in the posteromesial wall of the fibrous sac (Fig. 5). The area (F) indicated in the diagram was the source of the microsection which showed clear distinction between spleen and its capsule (Fig. 6, A and B), and new and old hemorrhage in the mass and its fibrous capsule, (Fig. 6, C and D). Various stages of organizing hemorrhage were found. The spleen itself showed normal architecture. There was no evidence of

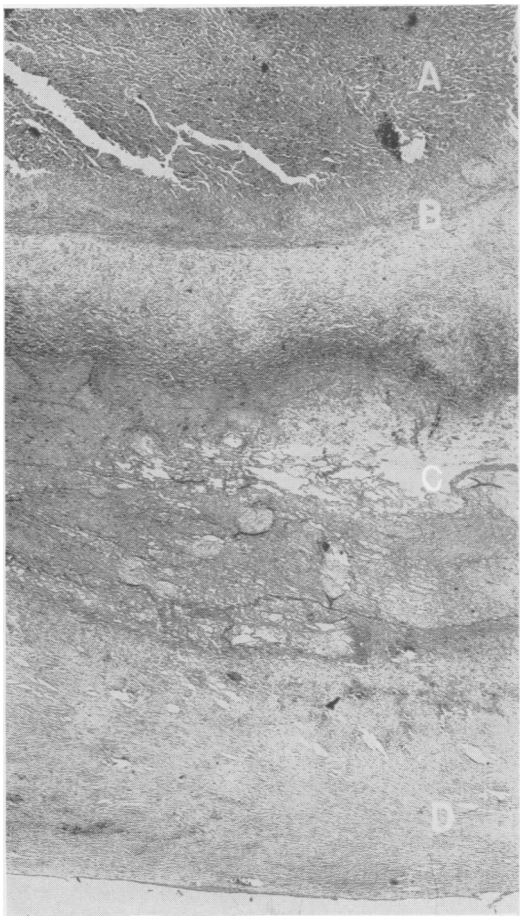


FIG. 6.—Photomicrograph of the area indicated (F) on Figure 9. Normal spleen and its capsule (A and B) are delimited from new and old organized hemorrhage (C) and its fibrous capsule (D).

malarial pigment. This was considered to be a chronic extracapsular hematoma.

DISCUSSION

One of the most striking features in this case was the extreme time interval between the known trauma and the clinical appearance of its effect. There were indications in the specimen examined and in the history noted that the process had been intermittently active for two to two and one-half years. Recent fresh hemorrhages were apparently marked by an episode of fainting, and again in the hospital by a marked drop in the red cell count and hemoglobin value. Enlargement of the subdiaphragmatic mass produced pressure atelectasis resulting in pneumonitis in the left lower lobe for which the patient sought medical attention. These findings, and the appearance of blood obtained by thoracentesis, temporarily misdirected the management of the case until roentgen ray studies adequately demonstrated the position of the mass. Evidence of old organized hematoma in the pelvis obtained at the second operation suggested the presence of free peritoneal bleeding at the time of the initial trauma. In marked contradistinction to the usual type of delayed splenic rupture, which consists of capsular tears over active hemorrhage in the splenic pulp, this was an instance of perisplenic hematoma. Intermittent hemorrhage over a long period of time gave the mass some of the characteristics of a false aneurysm. This may have represented an interruption in the development of secondary pseudocyst of the spleen as summarized by Fowler.[1]

SUMMARY

An instance of post-traumatic perisplenic hematoma is presented with a series of diagnostic roentgenograms. Clinical and pathologic evidence of intermittent hemorrhage into the mass about the spleen is discussed.

Antecedent trauma was noted two and one-half years prior to the development of clinical symptoms prompting hospitalization, investigation and splenectomy. The patient denied any history of injury other than the episodes noted.

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