

Spontaneous Idiopathic Segmental Infarction of the Omentum*

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SPONTANEOUS IDIOPATHIC segmental infarction of the omentum is a rarely reported condition of which there are only 33 authentic cases²⁻²¹ since Bush¹ reported the first case in 1896. One can be certain that many of the cases are not reported, or else pass unrecognized, since it has been shown that the infarcted segment can be allowed to remain in the abdomen with no ill effects.² This disease has been known by various names, including acute hemorrhagic epiploitis, idiopathic segmental infarction and primary omental thrombosis. The signs and symptoms in general parallel those of acute appendicitis, for which it is most often mistaken. Other erroneous preoperative diagnoses include perforated peptic ulcer, mesenteric thrombosis, acute pancreatitis and acute cholecystitis. No case has been diagnosed preoperatively, although we were very fortunate to have suspected this in one of our cases after the author had seen two previous ones in rapid succession.

Idiopathic segmental infarction must be distinguished from infarction due to torsion or other systemic vascular disease, and to make this distinction we refer to the classification proposed by Leitner *et al.*¹⁵ According to their criteria the cases reported by Berger, Hines, Seley, Cabot, Johnson and Bang-Dietrichson had to be eliminated from this evaluation.

Idiopathic infarction has been reported in a wide age range, being most prevalent after the third decade, although a case is reported in a child of three. The oldest individuals, aged 67 and 68, have been included in our series. Males predominate over females almost three to one.

The only symptom agreed upon in all reports is pain. In some cases this is gradual in onset; in others it reaches a crisis in a matter of hours. However, it has seldom been described as "crampy," but rather steady in nature. It can localize itself rapidly or remain diffuse for hours or days before radiating to various parts of the abdomen. The location of the infarct determines the level of pain or tenderness which may be in the right lower quadrant, in the epigastrium, or in the right upper quadrant. Schaff *et al.*²⁰ suggest that "pain which disappears with rest and recurs on resumption of activity is suggestive of omental disease."

Nausea and vomiting do not routinely accompany this disease, being more often absent than present. If the infarct is of considerable size a mass may be palpable but this is unusual. The degree of rigidity varies widely from none at all to a marked muscle spasm. A slight temperature elevation is the rule, usually not rising above 37.7 degrees C. The leukocyte count offers no definite clue, varying from normal to a marked elevation in polymorphonuclear leukocytes. Marked hyperesthesia of the skin is mentioned by some authors as being a prominent feature not typical of other acute intra-abdominal lesions.

ETIOLOGY

Several theories on etiology have been advanced, but that of Pines and Rabinovitch¹⁸ seems to be favored. Their "pull mechanism" theory was demonstrated experimentally by the formation of a thrombus in the jugular vein of rabbits following "forceful pulling on the jugular veins" injuring the endothelial lining. They also found that clotting oc-

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curred more rapidly if the vessel was slightly occluded or constricted distal to the point of endothelial injury, thus retarding the flow of blood. They suggested that during digestion, when venous engorgement is most evident in the dependent portion of the omentum, a slight injury of omental vessels might produce thrombosis. Totten²¹ supports this belief, adding that any tension during digestion incident to "straining, coughing, sneezing, or lifting, may be sufficient to cause a primary rupture of the dependent veins of the omentum with hemorrhagic extravasation and secondary thrombosis." Egar and Barto⁶ add that since the infarction is usually in the right free border of the omentum, there may be some anatomic peculiarity of venous drainage that predisposes to thrombosis.

CASE REPORTS

Case 1. H. B., a 67-year-old white male, was admitted on December 1, 1951, to St. Joseph's Hospital with the complaint of sharp abdominal pain. He stated that 7 years previously a cash register fell on his abdomen and since that time he had had intermittent attacks of evening epigastric pain, often precipitated by overeating. Present illness began 5 days prior to admission with the onset of epigastric pain associated with some nausea but no vomiting. For the first time in his life he had constant headache of 5 days' duration. He had no history of bloody or tarry stools; he was a daily user of laxatives.

Physical examination showed a well-developed, well-nourished white male in no distress but evidently in a weakened state. Abdominal findings presented diffuse tenderness over the entire abdomen, with some localization of pain just below the umbilicus. The liver was palpable 3 cm. below the right costal margin. There was a palpable mass above and to the left of the umbilicus, and during a subsequent examination to the left and below the umbilicus. Blood pressure was 132/78; temperature, 38.8° C.; and pulse, 88. Laboratory findings showed a white blood cell count of 18,800 with 85 per cent polymorphonuclear leukocytes, 12 per cent lymphocytes and 3 per cent monocytes. Hgb was 80 per cent, with 4,000,000 red blood cells. The remainder of the laboratory work was normal except for one plus albumin in the urine. An impression of an inflammatory mass, possibly diverticulitis, was made at that time. Upon emergency laparotomy the

omentum was found to be thickened and wrapped in the form of a ball 12 by 7 cm. and containing what was thought to be an abscess. There were no diverticula of the colon, and no other source for the "abscess" could be discovered. The mass, moderately adherent to the umbilicus and a few coils of intestine, was resected and the abdomen closed. His temperature remained elevated for the first 2 days postoperatively, after which he convalesced uneventfully, being discharged on the seventh postoperative day.

The pathologist described a mass of omentum measuring 14 by 8 by 5 cm., the midportion of which was necrotic. Microscopically the fat tissue was streaked with strands of fibrous tissue accompanied by rather heavy leukocytic infiltration. In some areas there were lymphocytes and giant cells of foreign body type. Other areas showed complete necrosis within the depths.

Pathological diagnosis. Acute gangrenous necrosis of omentum of nonspecific type.

Case 2. J. D., a 68-year-old white male, was admitted to St. Joseph's Hospital on June 7, 1952, with the complaint of right upper quadrant pain. This patient was well until two days prior to admission, when he began to have severe right upper abdominal pain. The pain was constant in nature and did not radiate. There was no associated nausea or vomiting, the appetite remaining good. On the day before admission the pain in the right upper quadrant became more pronounced. Past history was uneventful except for a previous abdominal exploration following an injury in the left upper quadrant "many years ago." Physical examination showed a well-developed, well nourished elderly white male in no acute distress. There was marked tenderness in the right lower quadrant, particularly near the anterior superior iliac spine. A mass was palpable in the gallbladder region and moderately tender. There was slight spasm of the rectus muscle in this area. Peristalsis was diminished; the old left upper quadrant surgical scar was noted. He had a white blood cell count of 9,950, with 80 per cent polymorphonuclear leukocytes and 20 per cent lymphocytes. Hgb was 87 per cent, with 4,260,000 red blood cells. The remainder of the laboratory work was essentially negative. Admission temperature was 37.2° C.; pulse, 84; blood pressure, 135/70. An impression of subacute cholecystitis was made at this time. The patient was given antibiotics, intravenous fluids and sedation, and surgery was postponed for several days. Two days after admission a rise in temperature to 37.7° C. prompted the surgeon to an exploration. The gallbladder was found to be normal; however, over the gallbladder and extending inferiorly there was a segment of infarcted omentum 10 by 7 by 5 cm. This was excised, to-

gether with the appendix. Patient was discharged 8 days following operation, after an uneventful course in the hospital.

The pathological specimen measured 10 by 7 by 4 cm., the portion of omentum presenting a dark purplish segment surrounded by hemorrhagic areas. Microscopically the omentum showed edema, hemorrhagic extravasation and leukocytic infiltration.

Pathological Diagnosis. Hemorrhagic infarction of omentum.

Case 3. A. R., a 22-year-old white male, was admitted to St. Joseph's Hospital on August 6, 1952, with the complaint of pain in the right lower quadrant. The patient stated that he was well until 3 days prior to admission, when he began to have persistent pain in the right lower quadrant. This was at times sharp and steady, but at other times "crampy." He had no nausea or vomiting. The patient noted some degree of constipation until the day before admission when he had 2 bowel movements. There was no previous history of food intolerance or right lower quadrant pain. On the day of admission he could not "straighten up," and walking was painful. Past history was uneventful except for convulsive seizures since 1950, controlled with phenobarbital.

Physical examination revealed a well-developed, well-nourished white male in no distress. There was moderate tenderness on palpation in the right lower quadrant, but exquisite tenderness was present in the right upper quadrant, especially below and slightly lateral to the gallbladder region. Rebound pain was referred to the right upper quadrant. There was no palpable mass present. His blood pressure was 110/70; temperature, 37.4° C.; and pulse, 76. Laboratory findings showed a hemoglobin of 76 per cent, white blood cell count, 8,650, with 68 polymorphonuclear leukocytes and 32 lymphocytes.

He was placed on a liquid diet, antibiotics, and bed rest, with an ice bag to his abdomen. The next morning the temperature and pulse were normal, but the white blood cell count had risen to 10,650. While lying quietly in bed the patient had no pain. In the surgeon's opinion he did not appear to have appendicitis or cholecystitis, but "something rare, like an infarct of the omentum."

At exploration that day, an infarct of the omentum was found in the right upper quadrant, measuring 3 by 7 cm. There was no evidence of a pedicle or torsion. The infarct was resected and an incidental appendectomy done. He made an uneventful recovery and was discharged on the sixth postoperative day.

The pathologist described a piece of omentum measuring 7 by 3 cm. showing edema, induration

and areas of hemorrhage resembling an infarction. Microscopically the fatty tissue presented areas of hemorrhagic extravasation and fibrous organization.

Pathological diagnosis. Omental infarction and organizing fat necrosis.

Case 4. J. A. H., a 27-year-old white male, was admitted on March 12, 1953, to St. Joseph's Hospital with the complaint of right lower quadrant pain. He was well until 6 days prior to admission, when he experienced a severe degree of epigastric discomfort, became nauseated and vomited. Because he felt "sore all over," he thought he had the "grippe." He took a laxative that day for constipation and again on the night previous to admission; this resulted in several loose bowel movements. On the morning of March 11 he became aware of sharp pain in the right para-umbilical region which continued all day, slowly localizing to the right lower quadrant. With the persistence of pain which kept him awake that entire night he came to the hospital for admission. Past history was non-contributory except for a "spot on the lung" as a child.

Physical examination revealed a well-developed, well-nourished white male lying in bed in no distress. Abdominal findings showed moderate muscle spasm with acute tenderness in the right lower quadrant at McBurney's point. Rebound tenderness was referred to the right lower quadrant with no palpable masses being present. Peristaltic activity was suppressed. Oral temperature was 37.4° C.; pulse, 90; and blood pressure, 120/70. His white blood cell count was 9,700, with 82 per cent polymorphonuclear cells and 18 lymphocytes. Four hours later this had risen to 12,150, with 84 per cent polymorphonuclear cells and 16 per cent lymphocytes. The remainder of the laboratory work was essentially normal.

At operation an omental infarct was found measuring 7 by 2 cm., situated in the right free border of the omentum and loosely adherent to the right lateral parietal peritoneum. This was resected and an incidental appendectomy done. The patient ran an afebrile course and was discharged on the sixth postoperative day.

The gross specimen measured 7 by 2 by 1 cm. Microscopically there was fresh hemorrhagic extravasation with lymphocytic infiltration at the periphery and slight leukocytic infiltration about the smaller vessels.

Pathological diagnosis. Infarction of the omentum.

Case 5. T. B., a 60-year-old white female, was admitted to the Bon Secours Hospital on June 2, 1953, complaining of right upper quadrant pain of 3 days' duration. This patient had had a history of daily epigastric discomfort and belching for 1½

years prior to admission, and on 2 occasions severe bouts of pain beneath the right costal margin which radiated to her right scapula. A gallbladder series following an attack of pain 3 weeks before coming to the hospital showed numerous non-radiable calculi. On May 5, 1953, she had a mild attack of pain in the right side of her abdomen, somewhat similar to the previous attacks but less severe. This, however, did not radiate to her back, nor was there any associated belching, nausea, or vomiting. The pain persisted until admission. There was no history of jaundice. The patient had had an appendectomy in 1933, and dilatation and curettage with excision of a cervical polyp in 1941.

Physical examination revealed a well-nourished, elderly female in no distress. A lower right rectus surgical scar was noted on the protuberant abdomen. The entire right side of her abdomen was tender, but more pronounced in the right upper quadrant. There was no radiation of pain nor rebound tenderness. No masses were noted.

Blood pressure was 140/96; pulse, 88; and temperature, 37° C. The hemoglobin was 88 per cent, with 5,500,000 red blood cells per cu. mm. A white blood cell count of 8,200 consisted of polymorphonuclear leukocytes 79 per cent; lymphocytes, 20 per cent; and monocytes, 1 per cent. The remainder of the laboratory work was normal, except for a trace of albumin in the urine. A diagnosis of chronic cholecystitis with cholelithiasis was made.

At laparotomy the following day a large, thin-walled gallbladder, surrounded by many fine adhesions and containing numerous stones, was removed. The common duct was not dilated. A few adhesions were also noted about the site of the previous appendectomy. On the right free border of the omentum, at its midportion, was a hemorrhagic area 2.5 cm. in diameter. This was excised following the cholecystectomy and the abdomen was closed. A cigarette drain was removed in 48 hours, and the patient discharged on June 11, 1953, after an uneventful convalescence.

Microscopic examination of the omental tissue showed extensive hemorrhage into the fat, with areas of degeneration.

Diagnosis. Infarct of the omentum.

DISCUSSION

Since we have encountered only 33 authentic cases of idiopathic omental infarction in the literature, it seems most unusual that we should see five instances of this condition in one and a half years. As we mentioned before, certainly the majority of cases are not reported, or else subside without surgical intervention.

All of the five patients discussed seem to comply with Leitner's criteria, since in no case was there any evidence of recent trauma, general cardiovascular disease, or local intra-abdominal pathological changes. Case 1, which progressed to gangrenous necrosis, we felt was just a subsequent state in the cycle of an infarction, as suggested by Johnson.¹²

Cases 1 and 2 mentioned previous abdominal injury in their past history, but its occurrence was so distant as to be of no significance in their present illness.

TREATMENT

The treatment of this disease is surgical. Since in the majority of cases the abdomen is explored for an acute appendicitis, one should always be aware of omental infarction when serosanguinous fluid is encountered during laparotomy in the presence of a normal appendix. Obviously resection of the infarcted segment brings about a complete cure. In only one case² was the infarction allowed to remain with drainage, but this is hardly recommended if excision is possible.

In the patients who are not explored it is conceivable that many small infarctions become organized and fibrose, never to cause any trouble; others may become adherent to coils of intestine and later precipitate obstruction or volvulus. Consequently excision is the procedure of choice.

SUMMARY

1. Five cases of idiopathic segmental infarction of the omentum are presented.
2. Two cases are the oldest reported, and another was diagnosed preoperatively.
3. Surgical excision is advised.

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