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Case Report

A Rare Cause of Mechanical Intestinal Obstruction: A Neoplastic Intra-Abdominal Testis

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The acute abdomen has many etiologies frequently encountered in emergency surgical units. Approximately 20% of surgical admissions for acute abdominal conditions are for intestinal obstruction. Clinicians often overlook rarer causes. A 43-year-old man presented to the emergency ward with the clinical findings of ileus. Computed tomography revealed a heterogeneous necrotic 168 × 100-mm mass between the sigmoid colon and urinary bladder. Physical examination revealed a palpable intra-abdominal mass that was removed via exploratory laparotomy. On histopathologic examination, the mass was identified as a seminoma. The literature contains few reports of seminoma as a cause of acute abdomen and ileus, mostly seen between the ages of 30 and 40 years. We report a patient with seminoma arising in an undescended testis that presented as a palpable painful lower abdominal mass and mechanical intestinal obstruction, despite the large diameter of the mass, as well as review relevant literature.

Key words: Intra-abdominal mass – Testicular cancer – Obstruction – Ileus

The causes of mechanical obstruction may be classified according to the manner in which the obstruction is produced: (1) obturation of the lumen as in gallstone ileus, (2) encroachment on the lumen by intrinsic disease of the bowel wall as in regional enteritis or carcinoma, or (3) lesions extrinsic to the bowel, such as an adhesive band. Intra-abdominal masses can cause mechanical intestinal obstruction.[1] Testicular cancer constitutes ~1% to 2% of all malignant tumors in males. Demographically, its

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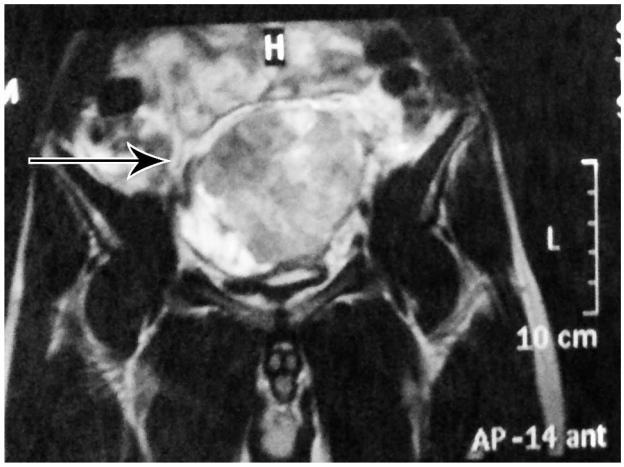

Fig. 1 Computed tomography identified a heterogeneous necrotic 168 × 100-mm mass between the sigmoid colon and urinary bladder in the transverse view.

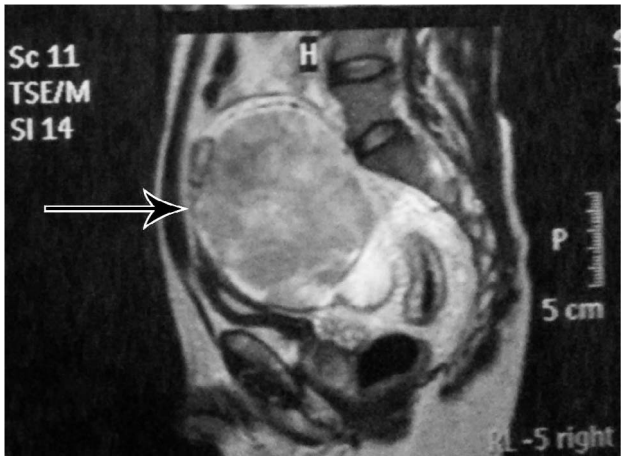

Fig. 2 Computed tomography identified a heterogeneous necrotic 168 × 100-mm mass between the sigmoid colon and urinary bladder in the vertical view.

incidence is below 2 in 100,000 in Africa and Asia, but is over 5 in 100,000 in North America and Scandinavia.[2,3] The probability of a male developing a testicular tumor is approximately 0.2%. Some authors have reported that predisposing risk factors of testicular tumors include socioeconomic status and the consumption of dairy products,[4,5] but the etiology of testicular tumors remains unclear. Congenital and acquired factors play an important role in the etiology of germ cell tumors. Patients with cryptorchidism (retained testis) are strongly predisposed to testicular tumors. Approximately 7% to 10% of patients with testicular tumors have a history of cryptorchidism. Furthermore, ~2% to 3% of primary testicular tumors are bilateral and can be synchronous or metachronous. Approximately 50% of these cases have a history of unilateral or bilateral cryptorchidism. Seminoma is the most frequent type of tumor in primary bilateral cases, while malignant lymphoma is the most frequent bilateral testicular tumor.[5,6,10]

Males with cryptorchidism are ~5 to 15 times more likely to develop a testicular tumor than males without the condition. Cryptorchidism is more frequent on the right side. In patients with unilateral cryptorchidism, the incidence of testicular cancer in the contralateral testis is ~5% to 15% and seminomas are frequent. Intra-abdominal testes carry the highest risk of malignancy (1/20). Although acute abdomen is frequently seen in emergency surgical units, intra-abdominal testis is an exceedingly rare cause.[6] In this report, we present a rare case of a cryptorchidic testis that caused a mechanical intestinal obstruction.

Case Presentation

A 43-year-old man with no known previous complaint presented to the emergency surgery clinic complaining of abdominal pain, nausea, and vomiting. On physical examination, neither defense nor rebound tenderness was present. The left scrotum was empty and a mass approximately 15 cm in diameter was palpated in the left lower quadrant. The patient had no medical illness or past surgical operations; he was not a smoker or alcohol consumer. He was not married and of poor socioeconomic status. His white blood count was 11,000/mm^3. No pathology was observed on colonoscopy. A direct X-ray of the abdomen revealed air-fluid levels. Computed tomography (CT) revealed a heterogeneous necrotic 168 × 100-mm mass between the sigmoid colon and urinary bladder (Figs. 1, 2). At exploratory laparotomy, a necrotic mass approximately 17 × 10 cm was observed between the sigmoid colon and urinary bladder. The mass was excised completely. No enlarged lymph nodes were found; and the sigmoid colon and urinary bladder were intact. The specimen demonstrated typical characteristics of classic seminoma with a smoothly demarcated fibrous capsule, which had a vascularized outer surface, and some spermatic chord structures were also identified macroscopically.

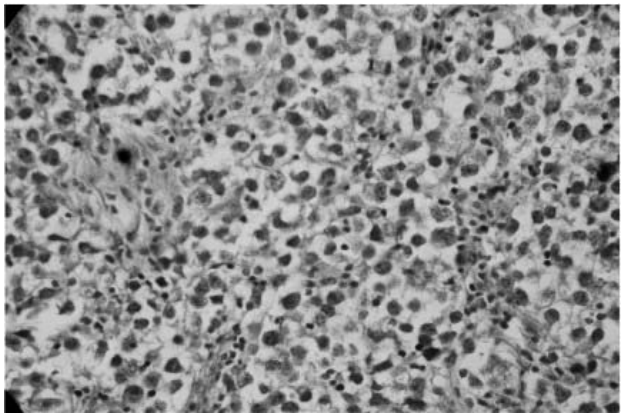

Fig. 3 Typical seminoma of the testis characterized by lobules of uniform cells separated by a fibrovascular stroma with an infiltration of scattered lymphocytes.

Immunohistochemistry studies revealed placental alkaline phosphatase–positive, p53-positive, and CD45-negative tumor cells. The epididymis and spermatic chord were not invaded. Tunica vaginalis was intact; however, the tunica vasculosa that was located under the tunica albuginea nested tumor cell piles (positive lymphovascular invasion; Fig. 3).

Postoperatively, the alpha fetoprotein (AFP) level was 5779 units/mL. The patient was subsequently treated with chemotherapy that included carboplatin. At the 48-month follow-up, he experienced no recurrence.

Discussion

Identifying the cause of acute abdominal pain is often challenging. Approximately 20% of surgical admissions for acute abdominal conditions are for intestinal obstruction. Adhesive bands are known as the most frequent cause of obstruction for all age groups combined.[1] Strangulated groin hernia, formerly the most common cause, is now in second place, with neoplasm of the bowel in third place.[1] These three etiologic agents account for more than 80% of all intestinal obstruction. Colorectal carcinoma and diverticulitis coli are predominant etiologic agents in the older age group, and these lesions are becoming more predominant in the overall picture as more of the population is living into the geriatric years where these lesions prevail.[1] The mass in the abdomen has a differential diagnosis of gastrointestinal stromal tumor, sarcoma, and, conglomeration of lymph nodes. A necrotic mass of 17×10 cm in our patient resulted in seminoma in a retained testis. However, of the many causes of acute abdomen, a retained testis is one of the rarest etiologies. The literature contains few reports of seminoma as a cause of acute abdomen and ileus. Testicular tumors generally occur in males aged between 20 and 40 years. Seminoma in retained testis is seen mostly until the age of 30 years.[7] Our patient was 43 years old, making this an exceptional situation. In 1993, Chang and Chan[9] reported 3 cases of seminoma involving an intra-abdominal testis, 2 of which presented as acute abdomens. One of their cases involved an acute abdomen due to hemoperitoneum secondary to the mass bleeding directly into the abdominal cavity.[6,8–10] In our case, the clinical presentation was caused by ileus. The patient's complaints were due to local and distant metastasis. The most frequent complaint is a painless, irregular, hard mass in the testis. In 10% of cases, signs of metastasis are identified. Symptoms may include swelling due to lung involvement, nausea, vomiting, loss of appetite, and back pain due to lung involvement and generalized or local somatic pain due to bone involvement. Statistically, a delay in diagnosis exceeding 16 weeks leads to an increase in mortality.[11] Our case presented with nausea and vomiting caused by ileus, which is also unusual.

Approximately 90% to 95% of testicular tumors originate from germinal tissue. Germ cell tumors of the testis are classified as either a seminoma or a nonseminoma germ cell tumor (NSGCT). NSGCTs respond better to chemotherapy regimens that include cisplatin. In the 1950s, the mortality rate exceeded 50%, but the rate has now fallen below 10%.[3] In our study, we also performed chemotherapy that included carboplatin in 2 doses. Postoperatively, our patient's AFP level was 5779 units/mL. The preoperative physical exam failed to identify the cryptorchidism due to the fullness of the scrotum. Hence, if suspected, scrotal ultrasonography is recommended. Our patient lived in a rural area with low socioeconomic status with no history of admission to a healthcare facility for similar symptoms. Hence, no follow-up history existed for cryptorchidism until the patient developed an acute abdomen.

In conclusion, intra-abdominal masses pose many challenges, one of which is the potential to cause physical intestinal obstruction. Therefore, in cases of acute abdomen, clinicians should be cognizant of an intra-abdominal testis as a potential causative lesion. This is illustrated in this case, which is a rare cause of mechanical intestinal obstruction despite the large diameter of the mass. A unilateral, rapidly enlarging, tender abdominal

wall mass with undescended testis should alert clinicians toward consideration of the possibility of seminoma and initiation of prompt intervention. Tumors of undescended testis can present as an abdominal wall mass and clinicians must be aware of their existence.

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