

Seminoma presented with acute abdomen due to ileum perforation

Case Report

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Abstract: Germ cell tumors presenting with an acute abdomen are not common. We present a case of seminoma with ileum perforation, which presented in a 48-year-old man. who had been admitted to hospital with a right lower abdominal palpable mass measuring approximately 16 cm. Before an exploratory laparotomy was performed, acute abdomen with signs of hollow viscus perforation had occurred. An ileum perforation was detected and a right hemicolectomy and ileal resection were performed. The pathological examination showed a classic seminoma of undescended testis. In conclusion, this case is interesting with respect to its clinical picture of acute abdomen due to ileal perforation. The possibility of a germ cell tumor should always be kept in mind in male patients with acute abdomen.

Keywords: Undescended testis • Ileum perforation • Seminoma and acute abdomen

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1. Introduction

Acute abdomen is not uncommon in patients who are under treatment for germ cell tumors. Various causes of acute abdomen include bowel obstruction, aortic dissection, bowel perforation, and acute pancreatitis which might occur after a retroperitoneal lymph node dissection [1-3]. Furthermore, acute small intestinal pseudo-obstructions have been reported after high doses of chemotherapy and stem cell transplantation used for germ cell tumors [4]. However, germ cell tumors are not a common cause of acute abdomen in patients without a previous history of having had a testicular tumor. Herein, we present a case of seminoma with ileum perforation as its initial presentation.

2. Case Report

A 48-year-old man who had been experiencing right lower abdominal pain ongoing for 2 weeks was admitted to our hospital. A palpable mass was detected. The computed tomography showed a large, solid mass measuring about 16 cm in the right lower quadrant of the abdomen (Figure 1). An exploratory laparotomy was considered, but the patient was admitted to our emergency service with nausea, vomiting and severe abdominal pain which had started abruptly. Abdominal tenderness, peritoneal irritation signs, and leukocytosis were determined. The chest X-ray revealed free subdiaphragmatic air as a sign of hollow viscus perforation. On upright abdominal radiograph, the small bowel loops were dilated and showed multiple air-fluid levels.

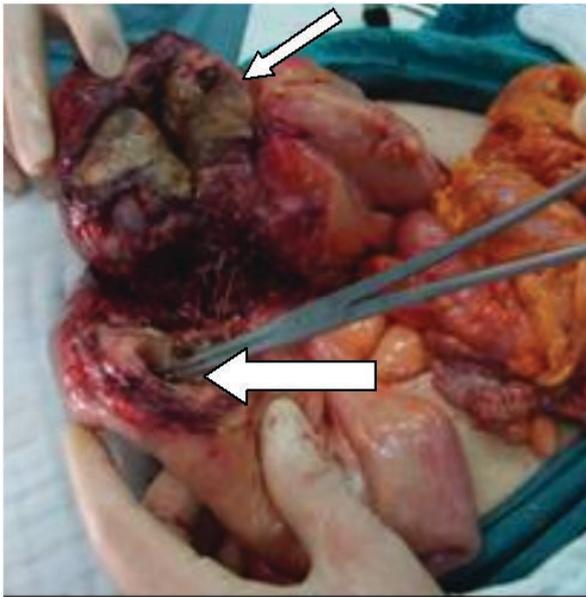
During an emergency laparotomy, 1500 mL of purulent fluid and bowel contents were observed in

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Figure 1. CT demonstrating a large abdominal mass in the right abdomen (arrow).



Figure 2. Intraabdominal mass (thin arrow), perforated small bowel (thick arrow).



the abdominal cavity. The right lower quadrant of the abdomen revealed a large mass, as described above, located on the mesentery of the terminal ileum. Dilated ileum segments were wrapped with omentum. When the ileum was separated from the omentum, perforation was seen along the antimesenteric border (Figure 2).

A right hemicolectomy and ileal resection were performed. Neither pre nor post-operative complications occurred. The histopathological examination revealed a classical seminoma with extensive tumor necrosis and vascular invasion. The expression of CD10 in tumor cells was found by immunohistochemistry.

Up to that point the patient had not been aware of an undescended testis. During the preoperative

period a scrotal examination was not performed. After surgery, the testis could not be palpated in the right scrotum. Pulmonary metastasis was not detected. The radiotherapy was scheduled.

3. Discussion

Undescended testes may be located anywhere along the developmental testicular descent pathway from the lower pole of the kidney to the external inguinal ring [5]. The etiology of undescended testis is multifactorial. Extensive research and clinical observations have elucidated some of the factors involved, but the exact mechanism of cryptorchidism has proven to be elusive. A recent study found that almost 23% of index patients with undescended testes had a positive family history of cryptorchidism, as opposed to 7.5% in control families [6]. A normal hypothalamic-pituitary-gonadal axis is a prerequisite for testicular descent [7]. Furthermore, testosterone and its conversion to dihydrotestosterone are also necessary for continued migration, especially during the inguinoscrotal phase [8].

Different studies have found conflicting data regarding the involvement of Müllerian-inhibiting substance, prenatal estrogen exposure, and descending (a specific gubernacular growth factor) in the pathophysiology of cryptorchidism [9,10]. Although its exact mechanism of action is unclear, the gubernaculum has significant importance in undescended testes. In patients with cryptorchidism, the gubernaculum is not firmly attached to the scrotum, and the testis is not pulled into the scrotum [11]. Both hormonal and mechanical factors appear to mediate the aid of the gubernaculum and descent of the testis [12]. The genitofemoral nerve may also aid in descent and gubernacular differentiation, which may be mediated by calcitonin gene-related peptide [13]. Intra-abdominal pressure also appears to play a role in testicular descent. Conditions associated with decreased pressure include prune belly syndrome, cloacal exstrophy, omphalocele, and gastroschisis, among other various syndromes. Each is associated with an increased risk of undescended testes [14].

In undescended testicles the incidence of malignancy is considered to be 3 to 48 times greater than in the general population [15,16]. Approximately 10% of all the testicular tumors appear on an undescended testicle [15,16]. Undescended testis is a very frequent pathology that affects 2-5% of children. Of the non-palpable testicles, it is absent in only 20% of the cases; the rest are in the abdomen or the inguinal canal. Abdominal testicles present a higher rate of malignancy than the ones located in the inguinal region [15]. The abdominal

testicles develop cancer in 30% of cases [17]. The high temperatures in the inguinal canal and abdomen would be responsible for the organ malignant degeneration [15]. The location of the testis is also a factor in the development of malignancy; an intraabdominal testis is five times more likely to develop a malignancy than is an inguinal one [18]. For these reasons, a specific effort should be made to locate testicles in patients with non-palpable testicles. If the patient is post adolescent, especially under 32 years [19], an orchiectomy is recommended.

In 75-85% of cases the tumors are seminomas [20]. Gastrointestinal (GI) tract involvement is unusual from seminomatous tumors [21]. It has been reported that the most common site of germ cell tumors in the GI tract is the small bowel, but the rate is very low with 5% [21]. Even in postmortem evaluations, GI metastasis of seminoma has rarely been reported. Johnson et al, [22] reported GI metastasis in only two of 21 metastatic germ cell tumors in autopsy studies. Another autopsy study, by Chait et al [23], did not demonstrate GI events of germ cell tumors. The bowel involvement of germ cell tumors can occur by direct invasion from an adjacent tumor, intraperitoneal seeding or hematogenous spread [23]. One study reported that metastatic tumors of the small intestine usually present with either obstruction or bleeding [24]. In our patient the cause of small bowel perforation was local invasion of the tumor. However, it is interesting to discuss the exact reason for the perforation. One of the possible reasons may be direct tumor infiltration of mesenteric arteries and the other simple mechanical obstruction of the arteries which caused the bowel necrosis. There is no evidence or published study to point out the real mechanism of this situation. But in our case, it can be speculated that the reason could be tumor infiltration of the mesenteric arteries since the pathological examination revealed vascular invasion in the resected specimen. Although these theories appear logical and acceptable, our experience is not sufficient to state that the origin of perforation is one of the theories described above.

The diagnosis of seminoma is difficult in patients with undescended testis due to nonspecific complaints, such as abdominal pain and secondary symptoms from effects of the mass [5]. Several cases of germ cell tumors initially presented with acute abdomen have been reported previously, and in these cases acute abdomen occurred by torsion or bleeding of intraabdominal testes [25,26]. Our case also presented with acute abdomen, but the main cause was small bowel perforation due to the tumor infiltration. A case of seminoma with duodenal perforation as initial presentation has been also reported [27]. To our knowledge, our case is the second

one reported in the literature with intestinal perforation resulting from primer intraabdominal seminoma invasion.

The differential diagnosis of a large intraabdominal mass includes sarcoma, lymphoma and other malignancies. Several diagnostic modalities have been advocated for the assessment and diagnosis of intraabdominal masses such as ultrasonography (USG), computerized tomography (CT), magnetic resonance imaging (MRI), fine needle aspiration biopsy (FNAB) or laparoscopy. Diagnosis might be difficult since the patient does not always give a history of undescended testis. Ultrasonography is an important non-invasive diagnostic tool, but intestinal loops full of gas represent a barrier for ultrasound [28]. Alternatively CT or MRI should be performed especially in male patients with intraabdominal masses [29]. Laparoscopy is a less invasive method and has some advantages over laparotomy [30], but we believe that laparoscopy can not give us adequate and additionally information about the symptomatic (pain, palpable mass) intraabdominal masses as in our patient. Ultrasound guided FNAB is valuable and may play an important role for the diagnosis of an intraabdominal mass; it also gives rapid and reliable information about further management [31]. In this case, our first and only diagnostic procedure was CT. We did not select any other methods since CT was sufficient for us to plan the laparotomy in this symptomatic patient before the onset of an acute abdomen situation.

In conclusion, the possibility of a germ cell tumor should always be kept in mind in male patients with acute abdomen, and a complete systemic physical examination should not be neglected.

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