Primary Abdominal Cocoon with Right Intra-Abdominal Cryptorchidism: A Case Report

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Case report

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Abstract

Background: Primary abdominal cocoon is a special peritoneal disease and easily cause misdiagnosis and mistreatment. Few cases have been reported primary abdominal cocoon with intra-abdominal cryptorchidism in the literature.

Case presentation: We admitted one case of a 41-year-old male patient with primary abdominal cocoon and right intra-abdominal cryptorchidism. The main symptom of this patient was intermittent abdominal pain for more than one month, preoperative CT results showed that part of the small intestine folded into a mass, which was suspected of abdominal cocoon. Part of the small intestine was wrapped by fibrous membrane and the right testicle were observed in the abdominal cavity during the operation. Intestinal adhesion release and right cryptorchidectomy were performed successfully. Pathological results revealed that the membranous material was fibrous connective tissue with chronic inflammatory cell infiltration and no spermatogenic cells and sperm were observed in the seminiferous tubules of the testicular tissue.

Conclusion: This article reports one case of primary abdominal cocoon with right intra-abdominal cryptorchidism. Primary abdominal cocoon lacks specific clinical manifestations, part of patients may have cryptorchidism and the diagnosis is difficult. We should improve the understanding of primary abdominal cocoon to better save the life of patient.

Background

In 1978, Foo named a special peritoneal disease with "abdominal cocoon" for the first time, which was characterized by the dense fibrous membrane wrapped part or all of the small intestine, resembling as the silkworm cocoon. The disease lacks typical clinical manifestations, and easily cause misdiagnosis and mistreatment(1–3). Cryptorchidism is a disease of abnormal development of the urinary system in children, which can be divided into intra-abdominal type and extra-abdominal type(4–6). However, few cases have been reported the coexistence of primary abdominal cocoon and cryptorchidism in the literature. This study introduced one case of primary abdominal cocoon with right intra-abdominal cryptorchidism to improve the understanding of abdominal cocoon.

Case Presentation

A 41-year-old male was admitted to Shandong Provincial Hospital Affiliated to Shandong First Medical University because of intermittent abdominal pain for more than one month. There was no history of abdominal surgery, tuberculosis or long-term medication history. Physical examination: flat abdomen, light tenderness in the lower abdomen, presence of bowel sounds and testicle was not touched in the right scrotum. Abdominal CT showed that part of the small intestine folded into a mass, which was suspected of abdominal cocoon; the right testicle was absent, and the testicle was suspected to be seen in the right abdominal cavity (Fig. 1).

During exploratory laparotomy, part of the small intestine was wrapped by fibrous membrane, the absence of the greater omentum and the right testicle were observed in the abdominal cavity (Fig. 2). Subsequently, intestinal adhesion release and right cryptorchidectomy were conducted smoothly. Pathological results showed that the membranous material was fibrous connective tissue with chronic inflammatory cell infiltration and no spermatogenic cells and sperm were observed in the seminiferous tubules of the testicular tissue (Fig. 3).

The patient recovered and was discharged on the 9th day after surgery with the help of diet bans, gastrointestinal decompression, anti-infection, suppression of digestive juice secretion, and nutritional support. After one-year follow-up, the patient recovered well.

Discussion And Conclusion

Abdominal cocoon, also known as sclerosing encapsulating peritonitis, which is characterized by part or all of the small intestine is wrapped by the fibrous tissue membrane like the silkworm cocoon(1, 2, 7). Cryptorchidism is caused by abnormal testicular descent, one of the common diseases of the urinary system in children, which can be divided into intra-abdominal type and extra-abdominal type, the main sign is the absence of testicle in the affected scrotum(4–6).

Primary abdominal cocoon is rare, most cases are diagnosed during exploratory laparotomy. It often present with unexplained abdominal pain, abdominal distension or intestinal obstruction(8–10). Typical abdominal CT shows that the bowel is twisted and folded in the shape of accordion or banana, which is surrounded by the layer of dense linear membrane, and the mesenteric and blood vessels are often involved, twisted and deformed(7, 11, 12). The etiologies and pathogenesis are unknown, part of patients with the absence of the greater omentum which are related to the congenital developmental abnormalities, the possible reason is that the greater omentum descends and wraps the intestine to form the smooth and dense cocoon membrane(13). Cryptorchidism mainly manifests as the absence of testicle in the affected scrotum(4, 5, 14), CT could accurately show the location of cryptorchidism in the abdominal cavity(15), and this disease may be related to the obstruction of testicular descent during embryonic development(14). In this case, he was admitted to the hospital due to unexplained intermittent abdominal pain, preoperative CT showed suspicious abdominal cocoon and right cryptorchidism. The patient did not have specific clinical manifestation, it was difficult to distinguish from other gastrointestinal diseases and seriously affected the accuracy of preoperative diagnosis.

Finally, primary abdominal cocoon and right intra-abdominal cryptorchidism were not diagnosed until the operation.

At present, surgery should be the first choice for abdominal cocoon with severe acute abdomen symptoms(9, 16, 17), the main principle is to separate and peel off the cocoon membrane, loose the adhesion between the intestines to release the movement vitality. The cocoon membrane may wrap the intestine and form the huge mass, which is easily misdiagnosed as the gastrointestinal tumor. We should improve the understanding of abdominal cocoon to avoid the short bowel syndrome which is caused

after mistaken resection of the intestine. Few cases of abdominal cocoon with cryptorchidism, especially intra-abdominal cryptorchidism, the related mechanism of this patient may be that the abnormally developed greater omentum wrapped the intestine and hindered the descending of the testicles. Studies had shown that abdominal cocoon had a better prognosis after surgical treatment(18), this patient recovered well during the one-year follow-up.

In conclusion, this article reports a rare patient with primary abdominal cocoon and right intra-abdominal cryptorchidism. Although the relationship between the two diseases is not yet clear, they may all related to congenital developmental abnormalities. Therefore, when treating patients with abdominal cocoon or cryptorchidism, we should pay attention to identifying whether the patient has two diseases at the same time to better save the life of the patient.

Abbreviations

CT
Computed tomography

Declarations

Availability of data and materials

All data generated or analysed during this study are included in this published article.

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Figures

Figure 1

Images of abdomen CT. a, b: part of the small intestine folded into a mass, which was suspected of abdominal cocoon. c, d: the right testis was absent and the testis was suspected to be seen in the right abdominal cavity.

Figure 2

Photographs of the surgery scene. a, b: The small intestine is surrounded by fibrous membrane.

Figure 3

Photographs of the postoperative pathology. a: Pathology of abdominal cocoon, the membranous material was fibrous connective tissue with chronic inflammatory cell infiltration. b: Pathology of cryptorchidism, no spermatogenic cells and sperm were observed in the seminiferous tubules of the testicular tissue.