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Abdominal Cocoon: A Case Series

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ABSTRACT
We describe a series of 18 cases of abdominal cocoon in patients presenting with features of small intestinal obstruction or perforative peritonitis, nine of whom had tubercular etiology while the rest were idiopathic. Manifestations of abdominal tuberculosis such as mesenteric abscesses, enlarged and caseating mesenteric lymph nodes, and tubercles over the bowel serosa were found in only 55% patients whowere ultimately diagnosed to have Tubercular etiology. We conclude that a high index of suspicion forthis rare cause of a common surgical emergency is desirable.

INTRODUCTION

Abdominal cocoon refers to total/partial encapsulation of the small bowel by a fibro collagenous membrane leading to acute/partial small bowel obstruction. It has been described by variousnames such as 'peritonitis chronic fibrosa incapsulata' and sclerosing encapsulating peritonitis.[1]

Two varieties of this condition have been reported: primary or idiopathic and a more common secondary variety. Various hypotheses have been suggested for pathogenesis of the primary variety, first described by Foo et al., in 1978.[2] The secondary form has been reported to be associated with use of β blockers (Practolol), abdominal Tuberculosis, sarcoidosis, Systemic Lupus Erythematosus (SLE), chronic ambulatory peritoneal dialysis (CAPD), cirrhosis and ventriculoperitoneal (VP) and peritoneovenous shunts.[3]

Accurate diagnosis of this rare cause of a common surgical emergency is challenging and requires a high index of suspicion.

In this report, we describe a series of 18 cases of abdominal cocoon.

CASE SERIES

A retrospective study was performed on 18 patients attending Surgery Department of RL Jalappa Hospital and Research Centre, Tamaka, Kolar, India between 2010 and 2015.The patients presented with features of small bowel obstruction

or perforative peritonitis. The most common symptom was longstanding vague abdominal pain while palpable abdominal mass was reported in only 2 patients. The duration of symptoms ranged from 15 days to 5 yrs. Only 2 patients had a family history of pulmonary Tuberculosis, while none had any personal history of pulmonary TB. None of the patients had any history suggestive of SLE, intake of drug like β blocker, history of peritoneovenous or VP shunt creation or CAPD. All were found to be non reactive for HIV.

Seven patients were on empirical Anti-Tubercular drug (ATD) therapy. Only one of our patients had a suspicious contrast study picture suggestive of congregated bowel loops .After preoperative preparation, 17 patients underwent exploratory laparotomy. Almost entire lengths of small bowel encapsulatedby thick, whitish membrane were found in all cases.

Enlarged and caseating mesenteric lymph nodes, and tubercles over the bowel serosa were found in 5 patients. Extensive adhesiolysis was performed in all cases and in the two patients who presented with perforated peritonitis due to ileal perforation, in addition to adhesiolysis, diversion procedure, ileostomy was done The encapsulating membrane was sent for histopathological examination (HPE) which revealed tubercular etiology in 9 cases. The rest showed evidence of thickened fibro collagenous tissue with inflammatory infiltrates. All those with a diagnosis of tubercular origin of cocoon on HPE were started on ATD therapy with symptomatic improvement in all during follow up (mean duration 3 years).

One patient who presented with small gut obstruction was a known case of alcoholic cirrhosis of liver and he died due to liver failure soon after admission.

DISCUSSION

Abdominal cocoon has been classified as primary and secondary based on whether it has a definite cause or not.[1] The various possible etiologies of the more common secondary type has been discussed in the Introduction. In view of the fact that tuberculosis is highly prevalent in our country, it is likely to have a role in the formation of adhesions in the peritoneal cavity due to retrograde infection via fallopian tubes from subclinical pelvic inflammatory disease/genito urinary tuberculosis.[10]

The idiopathic or primary variety is probably caused by a subclinical viral peritonitis leading to the formation of acocoon or as an immunological reaction to gynaecological infections, or due to retrograde menstruation. It has been reported to primarily affect young females from tropical and subtropical regions. However, reports of this condition in adult males, premenopausal women and children from temperate zones are found in the literature.[5]

The fibro collagenous membrane can extend to involve other organs like the large bowel, liver and stomach.[6]

Clinical presentation is vague and as reported in this case series, ranges from recurrent episodes of acute, sub acute or chronic small bowel obstruction, weight loss, nausea and anorexia, palpable abdominal lump, vague abdominal pain though some patients may be asymptomatic.[7] Abdominal or pelvic masses mayappear due to an encapsulated cluster of dilated small bowel loops. Recurrent acute or chronic small bowel obstruct-tion is usually secondary to kinking and/or compression of the intestines within the constricting cocoon.[8]

Radiological features are non specific but a better awareness of this entity and imaging techniques may facilitate pre-operative diagnosis.[9] Plain and contrast enhanced radiological studies may show incomplete or complete small bowel obstruction, with a circumscribed conglomerated mass of bowel loops with delayed passage of contrast. Only one of our patients had a contrast study suggestive ofa abdominal cocoon. Ultrasono-graphy and computed to mographic (CT) studies are of more specific diagnostic value, and may show a mass of tightly bound small bowel loops surrounded by a thick rim of hypoechoeic tissue. Loculated ascitic fluid, thickened peritoneal

membranes, and adherent bowel segments of various diameters are commonly seen. The imaging features are, however, not pathognomonic.[10] Similar CT findings have been reported in some cases of paraduodenal hernias.[11]

Due to nonspecific clinical presentation and radiological findings, most cases are diagnosed at laparotomy, as in this case series.[12]

Management of abdominal cocoon is controversial. But in most cases surgery is required. During surgery, a careful dissection and excision of the covering membrane and release of inter loop adhesions is needed to free the entire length of small gut.[13] The membrane often needs to be stripped from the small bowel until the loops are free.[14] Every effort must be made to avoid iatrogenic bowel injury during this process. Resection of bowel is indicated only in cases of non viability to avoid complications of postoperative intestinal leakage and short-bowel syndrome.[15] Use of laparoscopic approach has also been suggested in the literature[16]

but one must be careful while establishing a pneumoperitoneum to avoid injury to the bowel loops. An open approach to establishing pneumoperitoneum should be preferred.[17]In our series since all patients presented with acute abdomen, we did not perform laparoscopy.

Manifestations of abdominal tuberculosis such as mesenteric abscesses, enlarged and caseating mesenteric lymph nodes, and tubercles over the bowel serosa must be looked for during surgery, especially in countries where prevalence of abdominal TB is high.[18] Such features were found in 5/9 patients ultimately diagnosed to have TB.[19]

Of the 7 patients who were empirically treated with ATD preoperatively for long-standing (average duration: 4 years) non specific vague abdominal symptoms, only 2 were ultimately diagnosed to have TB on HPE. An empirical therapy with ATD hence seem sunjustified.

No surgical treatment is required in asymptomatic cases. The long-term prognosis of cocoon abdomen after lysis of adhesionsis usually excellent.[20] In the presence of histological evidence of tuberculosis, anti-tubercular medications should be started and the outcome in terms of symptomatic relief is generallygood.[21] All our patients who underwent surgical intervention and subsequently, appropriate medical therapy remained asymptomatic during follow up.

CONCLUSION

Abdominal cocoon, a rare cause of a common surgical emergency, must be kept in mind as a differential diagnosis in cases ofacute or partial small bowel obstruction in the absence of other plausible aetiologies. This is essential for proper management of this condition. Also, one must remember that not all cases of vague abdominal symptoms even in regions with high prevalence of tuberculosis, should be ascribed to TB and empirical therapy with ATD is not always a wise decision.

REFERENCES

1. Barral CM, Da Luz MM, Barral SM, Bechara C de S, Lacerda-Filho A. Idiopathicencapsulating peritonitis: report of two cases. Surg Today 2014;41 (12):1644-8.
2. Foo KT, Ng KC, Rauff A, Foong WC, Sinniah R. Unusual small intestinal obstructionin adolescent girls: the abdominal cocoon. Br J Surg1998;65:427-30.
3. Ranganathan S, Abdullah BJJ, Sivanesaratnam V. Abdominal cocoon syndrome. Hong Kong J Radiol2010;6:200-3.
4. Jindal S, Sandhu S Singh M, Pandey S,. Tubercular abdominal cocoon -a rarecause of intestinal obstruction. JSCR 2012;1:10.
5. Chen Li-Hua,Xu Ping, Li You-Ming. Idiopathic sclerosing encapsulating peritonitis (or abdominal cocoon): a report of 5 cases. World J Gastroenterol 2007;13(26):3649-51.
6. Kaushik Robin, Punia RPS, Mohan Harsh, Attri Ashok K. Tuberculous abdominal-ocoon a report of 6 cases and review of

the literature. World J Emerg Surg 2006;1:8.
7. George C, Al-Zawe K, Nair S, Cast JE. Computed tomography appearances of sclerosing encapsulating peritonitis. Clin Radiol 2007;62(8):732-7.
8. Narayanan R, Kabra SG, Bhargava BN, Sangal BC. Idiopathic sclerosing encaps-ulating peritonitis. Lancet 1989;2:127-9.
9. Tannoury JN, Abboud BN. Idiopathic sclerosing encapsulating peritonitis: abdominal cocoon. World J Gastroenterol 2012;18(17):1999-2004.
10. Makam R, Chamany T, Ramesh S, Potluri VK, Varadaraju PJ, Kasabe P. Laparoscopi management of abdominal cocoon. J Minim Access Surg 2008;4:157.
11. Tombak MC, Apayd›n FD, Çolak T, et al. An unusual causeof intestinal obstruction: abdominal cocoon. AJR 2010;194: 176-8.
12. Kirshtein B, Mizrahi S, Sinelnikov I, Lantsberg L. Abdominalcocoon as a rare cause of small bowel obstruction in anelderly man: report of a case and review of the literature. Indian J Surg 2011; 73: 73-5.
13. Zheng YB, Zhang PF, Ma S, Tong SL. Abdominal cocoon complicated with early postoperative small bowel obstruction. Ann Saudi Med 2008; 28: 294-6.
14. Mohanty D, Jain BK, Agrawal J, et al. Abdominal cocoon: clinical presentation, diagnosis, and management. J Gastrointest Surg 2009; 13: 1160-2.
15. Da Luz MM, Barral SM, Barral CM, et al. Idiopathic encapsulatingperitonitis: report of two cases. Surg Today2011; 41: 1644-8.
16. Devay AO, Gomceli I, Korukluoglu B, Kusdemir A. An unusualand difficult diagnosis of intestinal obstruction: theabdominal cocoon. Case report and review of the literature.World J Emerg Surg 2006; 1: 8.
17. Bas G, Eryilmaz R, Okan I, et al. Idiopathic abdominal cocoon:report of a case. Acta ChirBelg 2008; 108: 266-8.
18. Wang Q, Wang D. Abdominal cocoon: multi-detector row CT with multiplanar reformation and review of literatures. Abdom Imaging 2010; 35: 92-4.
19. Liu HY, Wang YS, Yang WG, et al. Diagnosis and surgical management of abdominal cocoon: results from 12 cases. Acta Gastroenterol Belg 2009; 72: 447-9.
20. Tarquini R, Colagrande S, Rosselli M, et al. Complete resolution of primary sclera-sing peritonitis ("abdominal cocoon") following long term therapy for Tropherymawhipplei: a case report and review of literature. BMJ Case Rep2009;2009. pii:04.2009.1810.
21. Ibrahim NA, Oludara MA. Abdominal cocoon in an adolescentmale patient. Trop Doct 2009; 39: 254-6