

Acute caecal volvulus: A diagnostic paradigm

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Abstract

Acute Caecal Volvulus is a rare etiology in cases of Intestinal obstruction. We are presenting the data of 11 cases out of 1032 cases of intestinal obstruction between June 2008 to June 2013, who presented in the emergency department of Bahawal Victoria Hospital Bahawalpur. The mean age was 36 ± 3.38 years with female preponderance in this retrospective study. The persistent distinctive features were chronic intermittent pain followed by the passage of flatus (54%), severe right lower quadrant colicky pain (31%) and abdominal distention (59%). Radiologically the dilated caecum with air fluid level (68%) was persistent finding with lateralization of small gut in few patients (12%). Cecopexy (18%), right Hemicolectomy with primary anastomosis (63.63%) and Ileostomy with mucous fistula (18%) were offered. Wound sepsis (27%) and chest infection (18%) were common sequelae. Acute Caecal Volvulus diagnosis requires a heightened clinical suspicion on the basis of symptoms like RLQ pain/mass which is relieved by passage of flatus and early radiological assistance in all cases of intestinal obstruction.

Keywords: Volvulus, intestinal obstruction, Bascule etc.

Introduction

Caecal volvulus accounts for approximately 1 to 3 percent of all large intestinal obstructions with an average incidence of from 2.8 to 7.1 per million people per year.¹ Caecal volvulus is frequently encountered in young females in comparison to the sigmoid volvulus which has preponderance in older age groups.²

It is thought that a common underlying factor may be chronic distension of the colon, possibly resulting from intestinal atony, coupled with a mobile caecum and a deep, narrowly based mesentery.³

Its presentation is quite confusing and cannot be differentiated from small intestinal obstruction in acute cases. Fulminant cases present with the signs of peritoneal irritation and haemodynamic instability.

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The current study was planned to review the clinical features of caecal volvulus to make Emergency surgeons aware of this uncommon entity by keeping a high index of suspicion in all cases of intestinal obstruction with or without peritonitis.

Patients and Methods

The retrospective study was conducted at Bahawal Victoria Hospital, Bahawalpur, Pakistan, and comprised record of cases presenting with intestinal obstruction between June 2008 and June 2013.

Data was retrieved from the record registers of operation theatre. In each case, clinical features at presentation, past medical history, concurrent illnesses, diagnostic investigations, surgical findings and treatment and subsequent follow-up were recorded.

Preoperative plain radiographs were obtained and discussed in the emergency meetings where possible. The cases were operated upon by consultants of senior registrar level. Antibiotic prophylaxis was given in all cases.

Results

Of the 1032 cases treated for acute abdomen, 11(1%) had intestinal obstruction. Of them 9(82%) were women (Table-1), and overall mean age was 36.36 ± 3.38 years, and median of 36.

The differential clinical features of acute caecal volvulus in relation to other causes of intestinal obstruction showed more occurrence of right lower quadrant (RLQ) pain, chronic intermittent pain relieved with passage of flatus and RLQ mass (Table-2).

The patients were managed with caecopexy 2(18.18%), right hemicolectomy 7(63.63%) and Ileostomy and mucous fistula 2(18.18%) patients (Table-3).

Postoperatively 3(27%) patients developed wound sepsis

Table-1: Demography.

Age	Male n=2	Female n=9	Total n=11
30-35	1(9.09%)	3(27.27%)	4(36.36%)
35-40	1 (9.09%)	5(45.45%)	6(54.54%)
40-45	0	1(9.09%)	1(9.09%)

Table-2: Distinctive features of Acute caecal volvulus in comparison to the other causes of intestinal obstruction.

Clinical Features	Acute Caecal Volvulus	Intestinal Obstruction (other causes)
Chronic intermittent pain relieved by passage of flatus	54%	2%
Severecolicky pain RLQ	31%	9%
Severecolicky pain Periumblical	19%	81%
Central Abdominal Distention	27%	86%
Right hemi abdominal distention	59%	13%
Palpable Mass in RLQ	25%	4%
Constipation	9%	23%
Vomiting	11%	34%
Previous surgery	27%	40%
LABS		
Leucocytosis	34%	39%
Radiological Features		
1.Caecal Dilatation with air fluid level	68%	NIL
2. Dilated small gut	27%	67%
3.Dilated gut loops on lateral side of cecum	12%	NIL

Table-3: Management options.

Procedure offered	No. of patients
Caecopexy	n=2 (18.18%)
Right Hemicolectomy & primary anastomosis	n=7(63.63%)
Ileostomy and Mucous Fistula	n=2 (18.18%)

and 2(18%) patients got respiratory tract infection.

One (9%) patient died on the operation table due to delayed presentation with ischaemic bowel.

The cases were followed up for 1-4 years after surgery with a mean period of 26.5±5 months. No recurrence was detected.

Discussion

Caecal volvulus is the commonest colonic volvulus after sigmoid. One study reported caecal volvulus as a rare cause of intestinal obstruction.¹ Caecal volvulus is responsible for 1-1.2% cases of intestinal obstruction in our series which is low compared to other studies.²

A study reported that there is variability of peak age of presentation in different geographical areas, as in India it is 33 compared to 53 years reported in western countries.^{2,3} We observed a mean age of 36 years in our series and female preponderance which is similar to the other studies.⁴ Patient age at presentation is presumably affected by cultural and dietary influences and their effects on intestinal motility in different areas.⁵

A lone study⁶ described defective peritoneal fixation of the ascending colon and caecum in 10% population. This fixation permits abnormal mobility of the ascending colon and caecum, making displacement of the right colon into any part of the abdominal cavity possible. Depending on the length of the mobile ascending colon, a variety of obstructive bowel patterns may result. A study³ described an association with adhesions, membranes and bands, which may provide a nodal point around which the mobile ascending colon may twist. Although both hyper mobile caecum and adhesions of previous surgeries were present in our series, but they are not essential for a volvulus to occur.

We encountered cases which were indistinguishable from small intestinal obstruction or had peritonitis. Our observation was that pain was the most persistent symptom followed by the abdominal distension in accordance with an earlier study.⁷ Chronic intermittent pain relieved by passage of flatus was reported by 54% of our patients, but 31% complained of pain in RLQ compared to 9% in other causes of small intestinal obstruction. Severe periumblical colicky pain was present in small intestinal obstruction (81%) compared to acute caecalvolvulus (19%). Second leading symptom was abdominal distension in our study which was more common in the right hemi abdomen (59%), with palpable mass also in few cases (27%). Constipation and vomiting was less frequent which is contrary to an earlier work.⁷

Laboratory investigations are neither specific nor sensitive for the diagnosis of acute caecal volvulus. In advanced cases of obstruction or ischaemia we observed abnormalities of white cell count and biochemical profile.

The preferred examinations are plain abdominal radiography, barium enema examination, usually with a single contrast agent, and computed tomography (CT) scanning. But in our study, acute volvulus got emergency presentations so plain radiograph was the only available tool which showed caecal dilatation with air fluid level in majority of our cases with dilated small intestine in a few cases. We observed that radiological findings can be diagnostic but one study⁴ has opposed it.

The differentiation from small bowel obstruction is also problematic, so early radiological intervention is advocated. In our series, radiological sign on plain radiographs were pathognomonic in most of cases, but in others they don't lead to a clue towards diagnosis and the same has been suggested by a study.⁵

Therefore prompt diagnosis in our settings requires heightened clinical suspicion and timely acquisition of

radiological aid.⁵

Due to unusual presentation of acute caecal volvulus, no prospective management trials are available to guide management decisions.⁸ Most cases are explored due to severity and short duration of acute abdomen.

We found cases with axial rotation of caecum except one which was bascule type. Surgeons opted for caecopexy and ileocolic resection depending on the viability of involved intestine. Majority had clockwise twist of caecum as mentioned in other studies.^{7,8} When gangrenous caecum is present, ileocolic resection is the treatment of choice depending on the surgeon's expertise and physiological status of the patient in accordance with an earlier work.⁹ In the absence of gangrenous bowel, one study¹⁰ recommends caecopexy because of a low mortality, low morbidity and low recurrence rate. However, we performed it on a few cases (18%).

Surgeons who favour resection usually present recurrence rates and local complications associated with caecostomy or caecopexy, while proponents of non-resectional approach advocate low mortality, less physiological insult and low recurrence rates.¹¹ However, with improvement in intraoperative and post-operative care, morbidity and mortality linked with colectomies performed with acute caecal volvulus has declined significantly and is preferred over tube caecostomy and caecopexy.¹⁰

Postoperatively, 3(27%) patients developed wound sepsis which was managed by drainage and antibiotics on culture and sensitivity. The number was high compared to a study¹¹ which revealed wound sepsis in 25% patients. Two patients (18%) developed chest infection which was managed by aggressive chest physiotherapy and antibiotics. The incidence of complications of wound was well correlated with the presence of gangrenous and ischaemic caecum as described earlier.¹² One patient died due to septicaemia after exploration on the table due to delayed presentation and existing comorbid factors like diabetes.

In the follow-up period of 1-4 years, no recurrence was detected in the available cases which is contrary to earlier work.¹³ However, a 10-year trial¹⁴ found no recurrence.

Conclusion

Acute caecal volvulus is a rare entity and only

heightened clinical suspicion on the basis of symptoms like RLQ pain/mass which is relieved by the passage of flatus and with early radiological assistance give clue towards the diagnosis, especially in middle-aged females presenting with intestinal obstruction with or without peritonitis. Caecopexy remains an acceptable option in viable caecum. Ileocolic resections with primary anastomosis or bowel exteriorisation can be implemented depending on the viability of the caecum and haemodynamic status of the patient.

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