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ORIGINAL ARTICLE

Clinical profile of patients and various modes of management in acute colonic pseudo obstruction

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Abstract

Aims & Objectives: To see the various modes of management in patients who diagnosed with Acute Colonic Pseudo obstruction (ACPO). The primary objective is to find out the clinical profile of patients of ACPO.

Material and Methods: This was an observational study which would require conservative mode Ryle's tube, flatus tube, electrolyte correction, colonoscopy. Intervention option like decompression tube or surgical management as per treatment algorithm, All the information required as per study proforma was collected over the first encounter. Follow up is not required. No additional cost burden on patient for this study.

Results: A total 23 patients were enrolled for study. Various modes according to the algorithm had been tried for management of ACPO. All patient had undergone X Ray Abdomen and/or CT scan. 4 out of 23 patients (17.4%) were on conservative measures, out of 2 patients were resolved and 2 died. Conservative measures included Nil by mouth, nasogastric decompression, rehydration, electrolyte correction and passage of flatus tube per rectum for 48 hours. One patient had been tried pharmacological therapy by injecting neostigmine but remained unsuccessful, rest had contraindications to pharmacological therapy. The other 19 patients failed to respond with conservative measures and thus they underwent interventional procedure (colonoscopy) which had not revealed any mechanical cause. Out of 19 patients,15 patients were benefited by placement of colonic decompression tube for 3 days. One patient treated with tube caecostomy. One patient had ceacal perforation for which Colectomy and ileostomy was done.

Conclusions: ACPO occurs in heterogenous group of patients, the exact aetiology and pathogenesis is not known. There should be high level of clinical suspicion. Once the diagnosis of ACPO has stablished and initial conservative management is unsuccessful, further measures are to be taken as per decisional algorithm. Colonoscopy and insertion of decompression tube leads the list of interventional procedure. In view of its high associated mortality, surgical intervention should only be a last recourse after failure of endoscopic procedures or when colonic perforation makes surgery unavoidable.

Keywords: ACPO (Acute colonic pseudo-obstruction), colonic decompression, tube caecostomy

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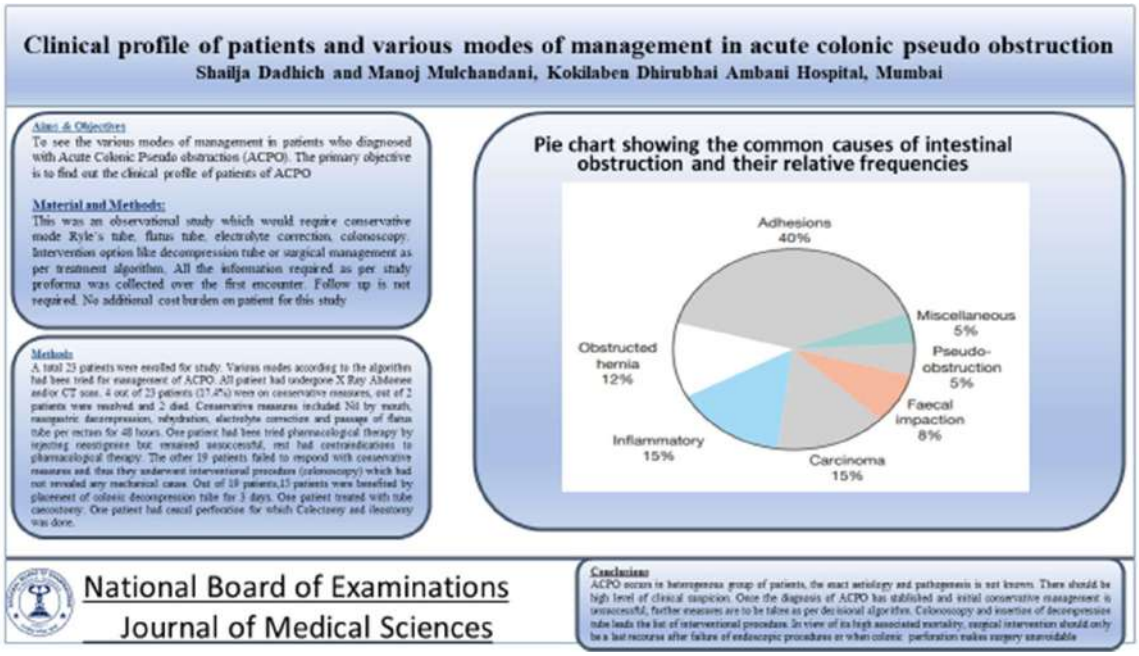
Graphical Abstract



Introduction

Acute colonic pseudo-obstruction (ACPO) or Ogilvie's syndrome (OS), consists of dilatation of all of the colon and rectum without intrinsic obstruction or extrinsic inflammatory process [1]. Wegener et al. [2] found ACPO has been associated with a diverse array of underlying conditions. It consists acute physiologic insults. The pathophysiology of ACPO is incomplete till now. The British surgeon Sir William Heneage Ogilvie [3] described unopposed parasympathetic activity following the disruption of the sympathetic supply by the cancer. Symptomatology consists of pain in abdomen, distension, nausea, and vomiting. Inability to pass flatus and stool are common but not frequently present. The clinician should suspect ACPO when no mechanical cause has found, in a patient who continues to have bowel dysfunction, including diarrhoea. Abdominal tenderness points towards ischemic bowel or perforation. It is a diagnosis of exclusion.. It is necessary to rule out mechanical obstruction. A patient who presents with symptoms of ACPO, multiple diagnostic modalities should be considered to diagnose. All Laboratory parameters are rarely diagnostic. Although correction of electrolyte may be helpful in the treatment. An elevated white blood cell count, lactate, or C-reactive protein may be a cause of more perforated bowel. An initial radiographic abdominal X Ray may help identify an obstruction and rule out anatomic cause of obstruction, such volvulus. A caecal diameter of 9 to 12 cm is suggestive of to cause impending perforation [4]. A typical radiographic finding of ACPO on CT scan is pan colonic dilation with no transition point [5]. The strategy of management for ACPO remains conservative in initial phase [6]. After ruling out a mechanical colonic obstruction, treatment begins with conservative medical therapy. It involves discontinuing oral intake, nasogastric tube decompression, correcting electrolyte, discontinuing opiates, correcting any fluid imbalance, cessation of any antimotility agents, and discontinuing oral intake, if possible, patient should be mobilized. In a stable, but

non-responders, the next step is to proceed with pharmacologic modality as neostigmine in a cardiac-monitored setting [7]. If pharmacologic therapy is unsuccessful for a patient, endoscopic colonic decompression together with the insertion of a large diameter soft catheter rectal tube is the next course of action. Alternatively, by inserting a lengthy catheter into the cecum while being guided by a fluoroscope, prolonged decompression can be accomplished. Surgical techniques may be required if conservative, medical, pharmaceutical, and endoscopic therapies fail to resolve ACPO. These include PEC or surgical caecostomy tube placement or subtotal colectomy. Of these operations, resection or exteriorization/caecostomy are the operations of preference when necessary since they have the highest success rate with the lowest morbidity [8].

The aim of the study was to see the various modes of management in patients who diagnosed with Acute Colonic Pseudo obstruction (ACPO). The primary objective is to find out the clinical profile of patients of ACPO. The secondary objectives were to understand diagnostic and treatment modalities of ACPO and to establish a clinical diagnostic criterion by segregating patients, clinical presentation, laboratory findings and radiological evidences in order to understand the pattern of distribution in Indian population more clearly.

Patient and Methods in Clinical Studies

The present study is an observational retro-prospective, single centre study conducted in the Department of General Surgery at Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute from June 2021 to June 2022. All patients who had diagnosed with ACPO were enrolled for the study. Patients with intestinal obstruction for that no cause had been found, admitted in ward, ICU, Stroke unit of Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute included after taking informed written consent. Institutional ethical and scientific committee clearance was obtained for conducting this study. Information was collected regarding comorbidities, previous surgical history and modality which resolved the acute condition.

Inclusion Criteria:

Patient age group 18 and above of either sex Male and female patients will be included who were hospitalized patient whose signs and symptoms shows intestinal obstruction for which no cause has been and voluntarily sign a consent form.

Exclusion Criteria:

Patient of intestinal obstruction whose mechanical cause has been found.

The patients who are diagnosed with ACPO would be selected for the study. They would be explained about the study in detail and then would be presented with the Informed consent form. Only those patients would be included in the study who consent for it. Once consent is obtained, information regarding the patient would be collected, including clinical history, examination, and relevant investigation reports (like blood investigations, other radio diagnostic scans and colonoscopy findings already done or advised by the consultant). All this information would be later compiled in tabular and chart form for analysis. This is an observational study which would require conservative mode, Ryle's tube, flatus tube, electrolyte correction, colonoscopy, decompression tube or surgical management as per treatment algorithm. All the information required as per the Study proforma is collected over the first encounter. Follow-

up is not required. No additional cost burden on a patient for this study.

Measurement of the outcome of interest:

This was an observational study which would require conservative mode Ryle's tube, flatus tube, electrolyte correction, colonoscopy. Intervention option like decompression tube or surgical management as per treatment algorithm, All the information required as per study proforma was collected over the first encounter. Follow up is not required. No additional cost burden on patient for this study.

Results and Analysis

A total 23 patients were enrolled for study. Various modes according to the algorithm had been tried for management of ACPO. All patient had undergone X-Ray Abdomen and/or CT scan. 4 out of 23 patients (17.4%) were on conservative measures, out of 2 patients were resolved and 2 died. Conservative measures included Nil by mouth, nasogastric decompression, rehydration, electrolyte correction and passage of flatus tube per rectum for 48 hours. One patient had been tried pharmacological therapy by injecting neostigmine but remained unsuccessful, rest had contraindications to pharmacological therapy. The other 19 patients failed to respond with conservative measures and thus they underwent interventional procedure (colonoscopy) which had not revealed any mechanical cause. Out of 19 patients, 15 patients were benefited by placement of colonic decompression tube for 3 days. One patient treated with tube caecostomy. One patient had ceacal perforation for which Colectomy and ileostomy was done (Figures 1 to 4).

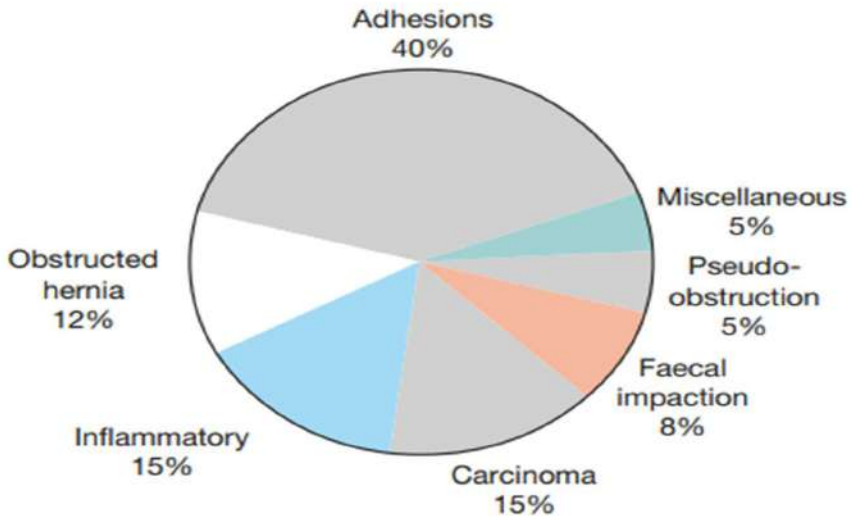


Figure 1. Pie chart showing the common causes of intestinal obstruction and their relative frequencies

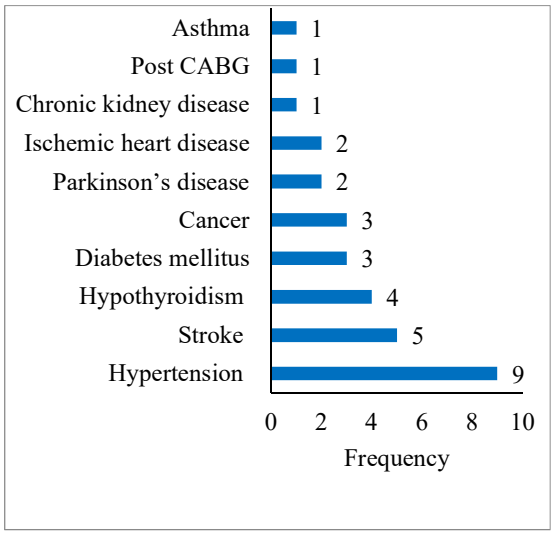


Figure 2. Distribution of patient underwent surgery and comorbidities

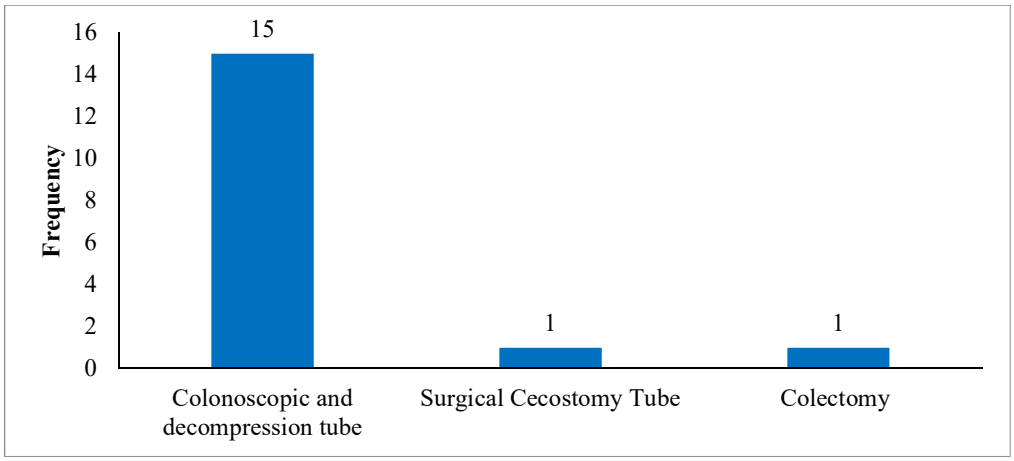


Figure 3. Distribution of surgical intervention in ACPO

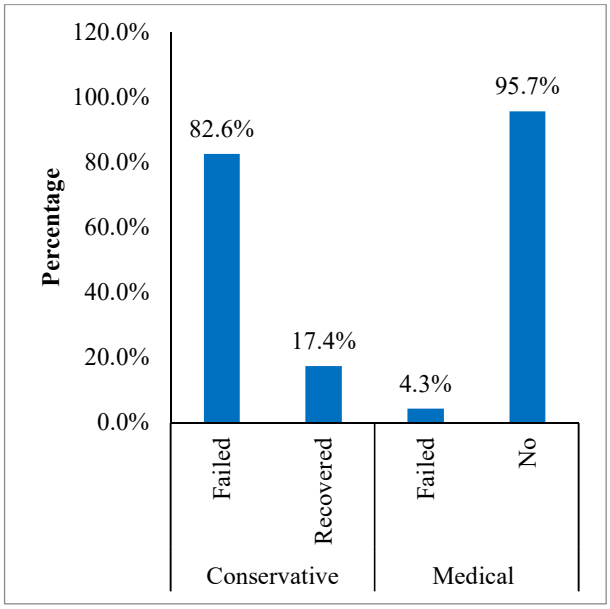


Figure 4. Failure rate of conservative and medical treatment in ACPO

Clinical Pictures (Figures 5 to 8)

Figure 5. Distended abdomen, tender with the presence of tympanic note

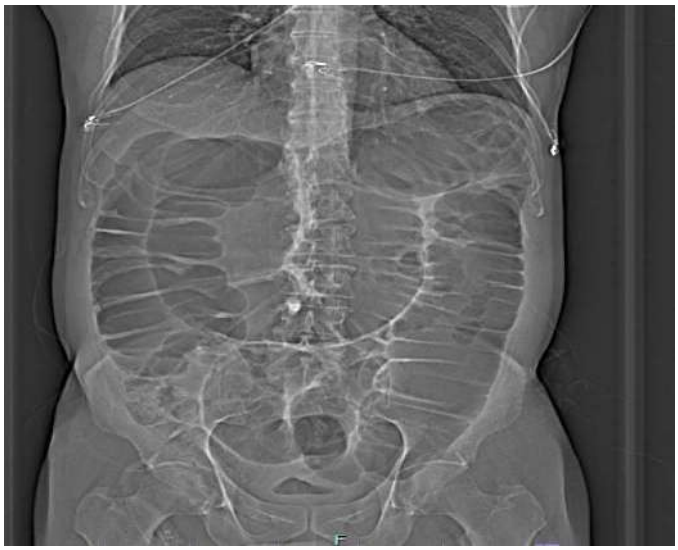


Figure 6. X-Ray Abdomen supine view shows massive colonic dilation

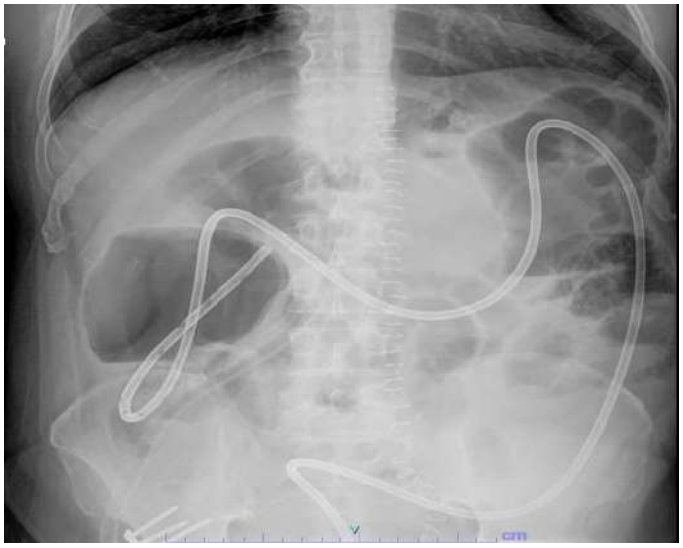


Figure 7. Decompression tube in situ

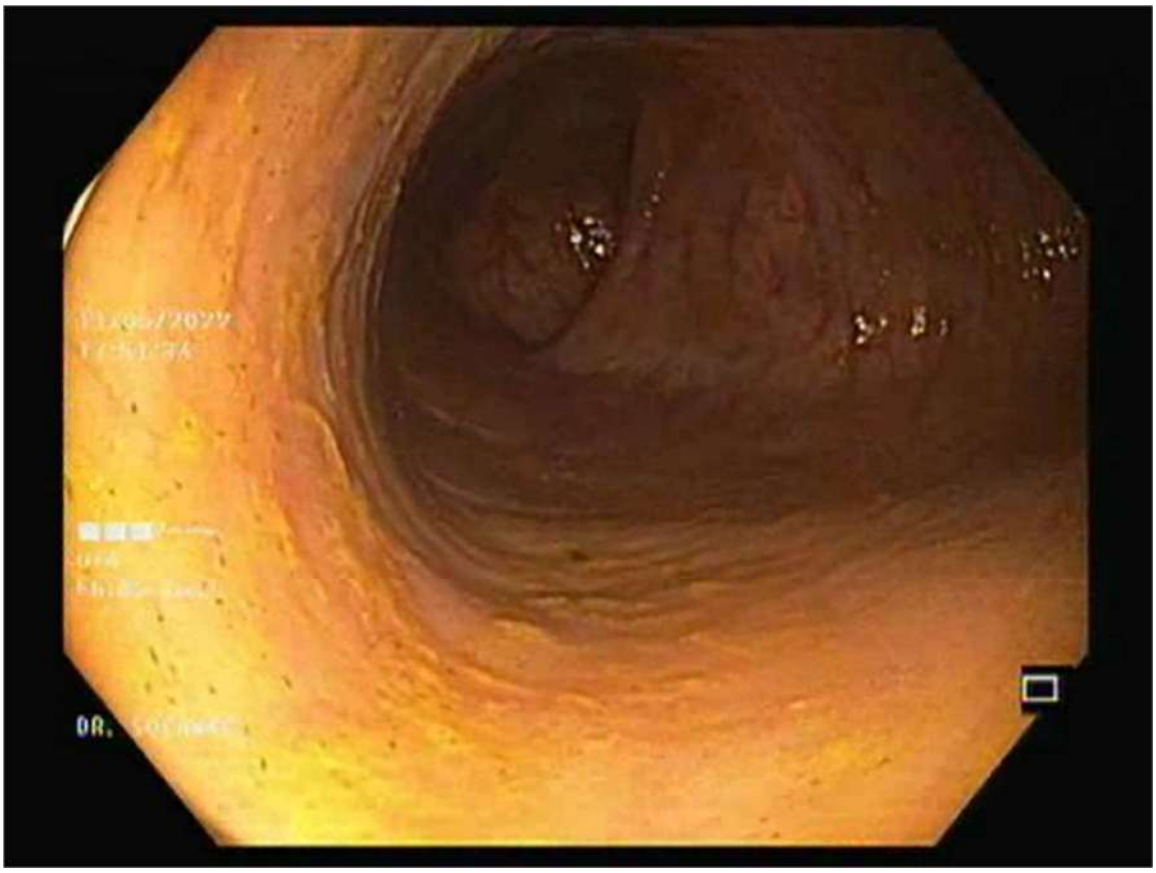


Figure-8. Grossly dilated colon

Discussion

This was a hospital based, retro-prospective, observational, single centre study to see clinical profile of patients and various mode of management in ACPO. Current literature on ACPO describes Intestinal pseudo-obstruction is a rare and heterogeneous syndrome caused by severe disorders of gastrointestinal motility.

A total 23 cases of ACPO enrolled in this study. Of these 17 patients were males and 6 were female indicating a male preponderance. This is similar to previous studies which suggest ACPO was diagnosed in 36 patients, 24 of whom were men. The mean age of presentation of patients was 67. It has wide range of age distribution from 37 to 88 years.

De Giorgio et. al. has studied that ACPO is a disease group difficult to diagnose due to occurrence in the elderly patient group with comorbidities and because it is not considered during differential diagnosis [5].

The most comorbidity observed in patients was hypertension as seen in 9 (39.1%) patients followed by hypothyroidism observed in 4 (17.4%) patients. 3 (13.0%) patients had diabetes mellitus and 2 (8.7%) each had suffered from stroke, Parkinson's disease (8.7 %), cancer (8.7 %) and ischemic heart disease (8.7%) One patient each had history of asthma (4.3 %), chronic kidney disease (4.3 %), post CABG (4.3 %)

Wegener et al. described in a In a study of 1,027 patients, postoperative circumstances (23%) and cardiopulmonary illnesses (17.5%), other systemic disorders (15%), and trauma (11%), were found to be the most frequently related factors with ACPO [2].

Out of the 23 patients, 9 (39.2%) had not undergone any surgery whereas 14 patients had undergone different types of surgery. 17.4% underwent craniotomy, Whereas Cardiac surgery (4.3%) hysterectomy (4.3%), Bariatric Surgery (4.3%), intestinal surgery (4.3%). Whereas 8.7% had prostate surgery, vertebroplasty each.

Vanek [12] had described epidemiology in 400 patients. 19% of instances followed spinal cord injury, pelvic surgery, or delivery. The following circumstances may also be linked to the emergence of ACPO: Other conditions include pharmacological reasons (opioids, antidepressants), transplantation, systemic infection (10%), acute cardiac events (10%), intensive care or volume resuscitation (9%), and orthopaedic treatments (pelvic fractures) (18%).

The most common clinical observation in patients was an increase in abdominal girth as seen in all 23 patients. (100%). Apart from increased abdominal girth, constipation was the most common clinical feature as seen in 20 patients (87%) whereas diarrhoea was observed in 3 (13%) patients. Bowel sounds and pain in abdomen was present in 12 (52.2 %) patients whereas vomiting was seen in 12 patients. (52.2 %)

Naseem Sunnoqrot reported hypokalaemia resulting from the symptoms of colonic pseudo-obstruction include frequent, watery diarrhoea with a high potassium and low sodium content. Instead of being caused by the obstruction of sodium reabsorption or chloride secretion, which are the two most frequent pathophysiologic processes of secretory diarrhoea, the diarrhoea is secretory and driven by potassium secretion [9].

Out of the 23 patients, 7 patients had low serum potassium levels of <3.5 mmol/L whereas 1 had slightly elevated levels of >5.1 mmol/L. Minimum potassium levels observed in patient was 2.6 mmol/L whereas maximum levels observed were 5.2 mmol/L. The mean serum potassium levels were 3.8 mmol/L.

Out of the 23 patients, 9 patients had low serum sodium levels of less than 136 mEq/L whereas rest 14 had normal serum sodium levels. Minimum sodium levels observed in patient was 122 mEq/L whereas maximum levels observed were 145 mEq/L. The mean serum sodium levels were 135.7 mEq/L.

Of the 23 patients, 2 had low WBC (<4000 cell/mL) whereas 9 had WBC in normal range whereas 12 had high WBC of >11000 cell/mL. Minimum WBC level was 2900 cells/mL whereas maximum WBC level was 24070 cells/mL. Mean WBC cell count was 11542 cells/mL.

All 23 patients had high CRP levels. Of the 23 patients, 2 had normal serum lactate levels (0.4 – 0.6 mmol/L) whereas 21 had high serum lactate levels (>0.6 mmol/L).

From the 23 patients, 14 had ceacal diameter between 3-8 cm whereas 9 had ceacal diameter of >8 cm. The minimum ceacal diameter in patients was 4 cm whereas maximum was 10.8 cm. The mean ceacal diameter was 7.3 cm.

Rondeau et al. reported 8 men were among the 12 patients (mean age: 80.2 years). They were all experiencing stomach ache. Seven patients had occlusive syndromes. Two of

the victims experienced septic shock. The cecum has an average diameter of 10 cm. For 9 cases, the entire colon was distended [10].

From the 23 patients, 2 had mid-transverse colon diameter of <5 cm, 10 had mid-transverse colon diameter of 5-6.5 cm and 11 had mid-transverse colon diameter of >6.5cm. The minimum Mid-transverse colon diameter was 4.7 cm and maximum Mid-transverse colon diameter was 12 cm. The mean Mid-transverse colon diameter was 7 cm.

Lee et al. noted on faecal gaseous distension of the transverse colon, faecal gaseous distension of the ascending colon, gaseous distended transverse colon, and gaseous small bowel loops were all visible on plain radiography. On CT scans, it was discovered that small bowel dilatation and pneumatosis intestinalis were present, as well as that faecal fluid had enlarged the ascending and transverse colon and faecal gas had enlarged the transverse and ascending colon [11].

Out of 23 patients, small bowel dilation was present in 8 patients whereas it was absent in 15 patients.

Form the 23 patients, 19 had undergone colonoscopy who failed to conservative measures. Decompression tube was placed in 16 patients out of 19 patients.

This cautious strategy has a success rate of up to 70% and an overall mortality rate of 14% [5].

Vanek and Al-Salti When necessary, tube cecostomy has been reported to have up to 100% success rates [12].

Conservative treatment failed in 19 patients and medical treatment failed in 1 patient. From the 23 patients, 15 underwent Colonoscopy and decompression tube, 1 underwent Surgical Cecostomy Tube and 1 underwent Colectomy.

Saunders et al. [5] the major causes of a high mortality rate could be attributed to ageing, coexisting illnesses, and the emergence of colonic necrosis and perforation. We had a mortality rate of 18%.

Magda et al. reported that ACPO related with a serious underlying condition and a low inpatient mortality at the moment [13]. In our study, out of 23 patients, 2patients did not survive whereas 21 recovered.

Conclusion

ACPO occurs in heterogenous group of patients, the exact aetiology and pathogenesis is not known. There should be high level of clinical suspicion. Once the diagnosis of ACPO has stablished and when initial cautious management fails, additional measures are to be taken as per decisional algorithm. Colonoscopy and insertion of decompression tube leads the list of interventional procedure. Surgery should only be used as a last resort following the failure of endoscopic techniques or when colonic perforation makes surgery necessary due to its high related mortality.

Statements and Declarations

Conflicts of interest – The authors have no competing interests to declare that are relevant to the content of this article

Funding – No funding was received for conducting this study

Ethics approval

Ethics committee approval was obtained from the Ethics Committee of Kokilaben

Dhirubhai Ambani Hospital, Mumbai Maharashtra. It was an observational study with all the procedures being performed as part of the routine care. A written informed consent was taken from all patients enrolled in the study.

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