

Case Report

A case of jejunal perforation secondary to jejunal diverticulosis in a patient with COVID-19 pneumonia

Varsha A. Sharma*, Manmohan M. Kamat, Jeena K. Sathyan,
Seema Barman, Shravani Shetye

Department of General Surgery, Dr. Balabhai Nanavati Hospital, Mumbai, Maharashtra, India

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*Correspondence:

Dr. Varsha A. Sharma,

E-mail: varsha.sharma70@yahoo.com

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ABSTRACT

Jejunal diverticulitis is a rare disease, with jejunal perforation as its rarest complications due to low intraluminal pressure. Since the current pandemic of COVID-19 it has shown to be affecting gastrointestinal system in a proportion of patients, and worsening of pre-existing GI conditions. We encountered a case of a 75 years old gentleman, suffering with severe COVID-19 pneumonia, who during the course of the disease presented with spontaneous Jejunal perforation, secondary to jejunal diverticulosis. Jejunal diverticula are the least common type of small bowel diverticula & perforation as their complication is the rarest of all complications. Their presentation is variable from asymptomatic to chronic abdominal symptoms and the complications such as perforation as described in our case. Their relative clinical rarity and varied presentation may make diagnosis both delayed and difficult.

Keywords: Jejunal diverticulosis, Jejunal perforation, COVID-19 pneumonia, Gastrointestinal symptoms in COVID-19 disease

INTRODUCTION

Jejunal diverticulosis is a rare disease in which most patients are asymptomatic. Jejunal diverticula are rare with 1% prevalence in the general population. Small bowel diverticula occur most frequently in the duodenum (45%), followed by Meckel's diverticulum (23%). Jejunal diverticula are the least common type of small bowel diverticula.¹ They are usually multiple and predominantly localized to the proximal jejunum. Jejunal diverticula are rare with 1% prevalence in the general population.¹ Small bowel diverticula occur most frequently in the duodenum (45%), followed by Meckel's diverticulum (23%). Jejunal diverticula are the least common type of small bowel diverticula.² Jejunal diverticula are usually multiple and predominantly localized to the proximal jejunum, followed by the distal jejunum.

Different complications of jejunal diverticula are serious and can be fatal. It is slightly more common in men than women, 58% compared to 42% in a reported series.²

Perforation secondary to JD is extremely rare, which may be related to the low intraluminal pressures within the small bowel. Here, we report the case of a Covid-19-infected patient who, during recovery from the active phase of the COVID-19 pneumonia, had gastrointestinal symptoms followed by a jejunal perforation secondary to jejunal diverticulitis.

CASE REPORT

A 75 years old male, a financial consultant by profession, belonging to Upper social class, with no medical comorbidities, was transferred to the emergency department of our hospital, with a 2 days history of severe acute abdominal pain, which was sudden in origin, present all over the abdomen & not relieving by medications. It was not associated with nausea, vomiting, fever, any constipation or diarrhoea. There was no history of ingestion of multiple painkillers or NSAIDs consumption. No history of hyperacidity. There was no history of blunt trauma to the abdomen.

Patient had a report of a CT scan of the abdomen from the previous hospital which was showing pneumoperitoneum & was suggestive of small bowel perforation.

Patient was already admitted in another hospital for COVID-19 infection for the last 15 days, after 3 days history of fever, HRCT chest & RT-PCR of nasal swab were diagnostic of COVID-19 pneumonia, he was being treated symptomatically and was initially requiring minimal oxygen through nasal prongs which eventually went up to requiring Non-invasive ventilatory support.

On admission to our hospital, he was on Non-Invasive ventilatory support with SpO2 of 100% on FiO2 70%, afebrile, with a pulse rate of 114, BP of 200/100 mmHg & RR of 22/min. On examination he had a tense abdomen, with diffuse tenderness and presence of guarding. Bowel sounds were sluggish.

His total leucocyte counts were 13750, C-Reactive Protein of 120, lactate dehydrogenase & ferritin levels raised to 434 & 878 respectively, with all the other parameters fairly in the normal range.

He was immediately taken for the exploratory laparotomy, in which we found presence of pus in the peritoneal cavity, multiple jejunal diverticula with one of the diverticula perforated in a segment close to D-J flexure.

30cm segment of the affected jejunum was resected & end-to-end anastomosis, jejunostomy was done along with a placement of a distal feeding jejunostomy. Two abdominal drains were kept, one in Morrison's pouch & one in the pelvis.

Final histopathology report was showing lymphoplasmacytic infiltrate at the base of the diverticula suggestive of diverticulitis with a perforation.



Figure 1: Excised jejunal segment showing multiple diverticula on cut section.



Figure 2: Jejunal lumen showing extensive necrotising inflammation in diverticula.

Post operatively, patient was kept intubated due to increased oxygen requirement secondary to COVID-19 infection & hence was kept on a ventilator. Post op day 3, patient had developed a Surgical Site Infection with gaping of wound, which was draining minimal amount of serous fluid. Post op day 10, tracheostomy was done for him for persistent ventilation requirement and Morrison's drain was removed due to low output. On day 13 of the surgery, he had developed burst abdomen, with small bowel loops popping out of the incision site. He was re-explored for secondary suturing of the midline wound, during which peritoneum & the bowels were found to be normal. Previously placed pelvic drain was removed in this surgery. Re-suturing of the midline incision was done using retention sutures.



Figure 3: Segment of Jejunum showing multiple diverticula & a perforation (Shown using a tube).

He was weaned off ventilator gradually after 2 weeks of second surgery, with subsequent COVID swabs negative. He was then shifted to the Non-COVID ICU, tracheostomy closure was done.

He was discharged on post op day 23, with healed midline wound & Jejunostomy feeding tube in sit, with the ability to tolerate oral soft diet, in an ambulatory condition & with normal bowel-bladder habit. Follow up

after 1 week of discharge, he had no fresh complains, his feeding jejunostomy tube was removed.

DISCUSSION

Jejunal diverticulosis was first described by Somerling in 1794 and by Sir Astley Cooper in 1807. Jejunal diverticula share similarities with colonic diverticula in that the mucosal herniations occur through gaps in the muscle layers along the pathways of the visceral vessels. The sizes of these diverticula vary between a few millimetres to greater than ten centimetres.^{2,3} As mentioned above, Jejunal diverticula are rare with 1% prevalence in the general population. Small bowel diverticula occur most frequently in the duodenum (45%), followed by Meckel's diverticulum (23%). Jejunal diverticula are the least common type of small bowel diverticula.¹ Their presentation is variable from asymptomatic to chronic abdominal symptoms and the complications such as perforation as described in our case. Their relative clinical rarity and varied presentation may make diagnosis both delayed and difficult. The discovery of jejunal diverticula may be incidental in imaging studies or may be found at laparotomy as the cause of clinical deterioration. Radiographic studies, which may incidentally demonstrate jejunal diverticula, are contrast enhanced small bowel follow through studies or computed tomography scans.⁴

Among the variety of complications that it can present with acutely e.g. diverticulitis, obstruction, haemorrhage; perforation is the least common, owing to the low intraluminal pressure in the small bowel. Instigating factors for perforation secondary to jejunal diverticula have been shown to be related to a necrotizing inflammatory reaction in 82% of cases, followed by blunt trauma in 12% of cases and foreign body impaction in 6% of all the case.⁵

Since the outbreak of novel coronavirus (2019-nCoV) studies show that respiratory symptoms, such as fever, cough, dyspnoea, and respiratory illness, represent the most common manifestations, however, as evident from the literature accumulated, it became clear that several gastrointestinal symptoms, such as abdominal pain, diarrhoea, and vomiting, were also observed.⁶

Since we are dealing with a novel disease whose clinical manifestations are partly unknown, we are learning about possible rare expression of the infection and its complications. This case highlights the need to be vigilant for gastrointestinal symptoms in COVID-19 positive patients for an early diagnosis and prevention of possible complications or an exacerbation of an underlying GI disease.

For diagnosis computed tomography is the most useful imaging tool in such cases.^{4,7} It has proved to be superior

to barium studies in demonstrating the mural, serosal and mesenteric extent of disease. The management is surgical with resection of the diseased segment advocated followed by primary jejunio-jejunal or jejunio-ileal anastomoses.

CONCLUSION

Jejunal diverticulosis is a rare condition & most often is an incidental finding however its complications can be serious or sometimes fatal. Jejunal perforation secondary to jejunal diverticulosis is extremely rare due to low intraluminal pressure & hence there's usually a delay in the diagnosis & treatment due to low suspicion. Novel coronavirus has shown to affect gastrointestinal system directly in few patients & can manifest with vague systems like abdominal pain, diarrhoea, vomiting etc. COVID-19 virus can also aggravate the pre-existing Gastrointestinal conditions due to their direct effect on intestinal cells & can cause worsening of these conditions. CT scan of the abdomen is the diagnosis of choice for jejunal perforation & resection of the segment followed by jejunio-jejunal or jejunio-ileal anastomosis is the surgical treatment of choice.

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