Case report

A STINT WITH CONSERVATIVE MANAGEMENT OF A HOLLOW VISCUS PERFORATION IN A COVID-19 POSITIVE PATIENT

Abstract

Background: Spontaneous perforation of hollow viscous, following prolonged periods of fasting is usually seen in the first part of the duodenum. Surgical treatment is the standard therapeutic option. Mortality of around 8 to 25 % is seen and is usually associated with delayed diagnosis due to vague symptoms or due to delayed presentation. Several reports have been published on the conservative management of duodenal perforation. Here, we present a case with suspected duodenal perforation with Covid19 positive status,at Silchar Medical College, Assam, India.

Case presentation: Here, we present a 45 year old hypertensive male with acute onset of pain abdomen, nausea and abdominal distension for two days, in hemodynamic shock, diagnosed to be a case of hollow viscus perforation, suspected to be duodenal perforation with Covid19 positive status. He was resuscitated and managed conservatively with Ultrasonography guided insertion of a tube drain and symptomatic management of Covid19 was done.

Result: Full recovery of the patient after a period of 21 days hospital stay and uneventful discharge from the hospital followed.

Conclusion: Prompt drainage of secretions and prevention of accumulation of septic foci, under the cover of antibiotics, and acid suppressants is an alternative to surgical therapy in a case of duodenal perforation with Covid 19 positive status with inoperability due to hemodynamic unstability.

Keywords: Duodenal perforation, gastric perforation, nonoperative management, COVID19

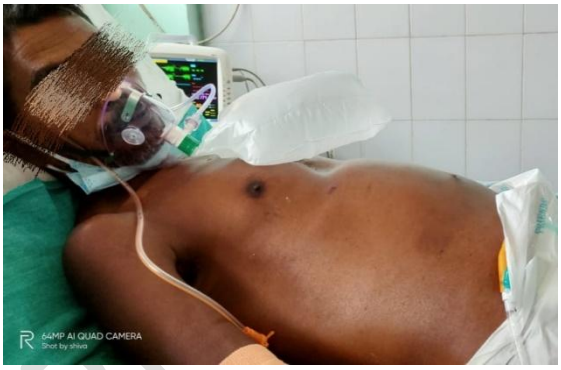
Abbreviations: NR (not recordable)

Background

Duodenal perforation may occur due to a variety of causes including peptic ulceration, iatrogenic, trauma etc., and is associated with high mortality rates due to delayed presentation and diagnosis. The investigation of choice is CECT (Contrast Enhanced Computed Tomography). Although X-ray Plain Picture (erect view) of the abdomen with the bilateral domes of diaphragm shows air under the diaphragm [1,2], giving a diagnosis of the presence of a hollow viscus perforation, the drawback being, it is non-specific of the site and status of perforation. Although surgery is the mainstay of treatment, the treatment protocol is dependent on the cause of perforation, the site, the timing of presentation and the clinical condition of the patient. Conservative management seems feasible in cases of stable patients with sealed perforation, even though majority of the patients require surgery in acute presentation or due to peritonitis and sepsis [9].

Case report

A 45 year old hypertensive male presented to the emergency room with pain abdomen, nausea for two days and distension of abdomen and drowsiness for one day. He had been on religious fasting for a period of 22 days, prior to the presentation [7,8]. On examination, we found him to be disoriented, drowsy with Blood pressure (BP), pulse rate (PR), oxygen saturation (sPO2) not recordable, Chest was bilaterally clear, Cardiovascular examination- no abnormality detected, Glasgow Coma Scale (GCS) was 14/15 ($E_4V_4M_5$). On per-abdominal examination, generalized distension and rigidity was noted over the entire abdomen (Figure 1), Peristaltic sounds could not be heard. Digital per-rectal examination was suggestive of a collapsed rectum with finger stained with mucous, no other abnormalities were detected.

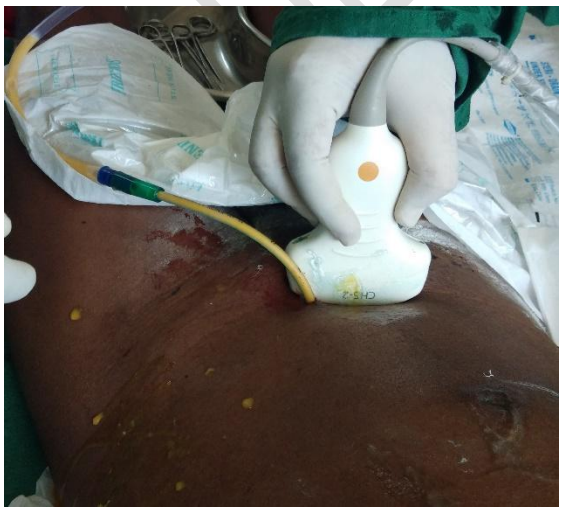


(Figure 1: Presentation with distention and pain abdomen)

Immediate resuscitation was started with two large gauze iv bore cannulas, IV-crystalloids 2 litres were administered at 20ml/kg/hr after an initial fluid bolus of 500mL . The initial urine output on per-urethral catheterisation was nil, which gradually improved to 230ml after 2hrs. Under Intensive Care monitoring, Infusion Noradrenaline was started in 500ml Normal Saline in one channel at 10-12drops/min. Seeing no improvement in the hemodynamics of the patient, inj dobutamine was added to 500ml Normal saline at 12-18drops/min. A nasogastric tube was inserted for decompression of the bowel and to remove additional gastrointestinal secretions. Simultaneously a bedside Ultrasonography [4] was done which suggested the presence of moderate debrigenous septated fluid collection in the peritoneal cavity, parasplenic and subhepatic regions with multiple intra-

peritoneal air-foci. Bedside X-ray plain picture (erect) of the abdomen was obtained which was suggestive of air under the domes of the diaphragm, suggestive of a hollow viscus perforation. His blood routine picture has been shown in Figure 2. Due to the ongoing Covid 19 pandemic, a routine nasopharyngeal swab for RT-PCR was also done, which came positive [11].

There was no improvement in his hemodynamic status, he was continued on vasopressors, injectable antibiotics (Meropenem 1gm iv 12-hrly), iv proton pump inhibitors (Pantoprazole 40mg iv 12hrly), infusion paracetamol (100ml iv 12-hrly). Anaesthesia consultation was done to operate upon the patient but we were advised against surgical intervention due to the poor hemodynamic state. After a wait of 48 hours, an Ultrasonography guided percutaneous insertion of a 20Fr tube drain was done on the bedside, under local anaesthesia, so as to remove the septic foci from the body as a temporary measure (Figure 2). He was started on TPN through a central venous line. He was also infused with human albumin 1 unit daily.



(Figure 2: Ultrasonography guided placement of per-cutaneous drain)

Gradually, the patient showed clinical improvement (Table 1). His blood picture improved (Table 2), his abdominal distension decreased. By the 4th day since presentation, he had passed flatus, and the 24hours drain output had started to plateau. After consultation with some of the senior most surgeons, it was decided that the patient be continued on conservative management [3,5] suspecting a sealed perforation [5,6]. By day 6 his drain output had started to decrease. The nasogastric tube aspirate had decreased to nil. He was passing and had passed few pellets of old foul smell, dark brown feces. Clinically, it was concluded that the perforation had begun to heal spontaneously. He was continued on TPN while infusion of human albumin was stopped on day 7. On day 10, he was started on sips of oral fluids, which he tolerated very well, with no change in the drain output and no distension of abdomen was noted. The oral fluid intake was gradually increased over a period of 4 days and a trial of semi-solid diet was given. The patient tolerated that very well. On day 15, he was started on solid diet, as small frequent meals. He responded well. By this time he had tested negative for COVID19. He was then shifted to the general ward. The percutaneous drain was removed on day 17. He was kept under observation for a period of 3 more days, while being provided physiotherapy as he was bedridden for more than a period of 2 weeks, he had started to develop muscular atrophy. On day 21, he was discharged uneventfully, after full recovery.

Discussion

Duodenal perforation is a rare but lethal condition, with a varied range of mortality(8-25%) [10]. In cases with prolonged periods of fasting, chronic alcohol abuse, spontaneous peptic ulcer perforation is seen in the first part of the duodenum. The duodenal perforation can be free or contained. Free perforation occurs with bowel content leaking freely into the peritoneal cavity whereas, contained perforation occurs when the surrounding organs wall off the area. Earliest case of duodenal perforation was described by Muralto in 1688, and the first successful surgical repair was reported in 1929 by Dean. The treatment protocol shifted from conservative to open and later to laparoscopic repair with primary repair and placement of an omental (Graham's) patch. The advancement in the treatment modalities has reached upto endoscopic placement of clips, metallic stents over the perforation. The conservative management is limited to delayed presentations with sealed perforations with hemodynamic stability or in old patients with uncontrolled comorbid conditions, moribund patients in shock.

Conclusion

In a hemodynamically unstable patient, with duodenal perforation, with COVID19 positive status; conservative management with the placement of ultrasonography guided percutaneous placement of a tube drain can be a successful treatment modality.

Day	***Mean BP*** *(mm Hg)*	***Mean Pulse rate*** *(beats/min)*	***Oxygen saturation*** *(sPO_2 %)*	***Drain output*** *(mL)*	***Nasogastric tube aspirate*** *(mL)*	***Urine output*** *(mL)*
1	NR	NR	NR	-	500	300
2	NR	52	86	-	1300	700
3	NR	94	83	900	700	1400
4	58/34	96	88	1100	400	1700
5	72/48	88	90	1300	350	2200
6	84/62	86	90	1200	350	2400
7	90/68	86	92	1100	250	3400
8	96/72	84	93	1400	100	3300
9	98/78	84	96	1350	30	3000
10	102/78	86	98	1100	-	3200
11	104/76	82	98	1000	-	2800
12	110/78	84	98	800	-	2200
13	108/78	88	98	400	-	3200
14	112/80	86	97	200	-	3000
15	110/78	82	98	100	-	2800
16	108/74	84	98	50	-	2700
17	114/78	80	99	10	-	3200
18	112/78	78	98	-	-	3000
19	110/80	80	98	-	-	2800

20	114/82	76	98	-	-	2800	

(Table1: Progressive clinical picture)

	Day**1**	Day**3**	Day**5**	Day**10**	Day**14**	Day**17**	Day**20**
Hemoglobin (gm%)	12	12.3	12.1	13.8	13.6	14.1	14.7
TLC (per cumm)	2960	11970	9074	6722	6020	5859	5427
Serum creatinine (mg/dl)	1.62	0.57	0.61	1.1	0.58	0.53	0.48
Serum sodium (mmol/L)	135	139	136	135	137	136	137
Serum potassium (mmol/L)	4.8	4.2	4.3	4.2	4.6	4.4	4.3
Serum albumin (gm/dl)	2.8	2.56	2.51	2.41	2.6	2.8	3.2

(Table 2: progressive hematological picture)

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