

Chicken Bone Perforation of Duodenum

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1. Abstract

Ingestion of foreign bodies is a common clinical problem encountered commonly in children and elderly people wearing dentures. It is rarely seen in adults. Complications due to ingested bone fragments are not common and preoperative diagnosis remains a challenge. We report a successful endoscopic management of a chicken bone piece which was perforating the duodenum. This case illustrates the importance of early diagnosis of foreign body and emphasizes the role of therapeutic endoscopy.

2. Introduction

Ingestion of foreign bodies is a common clinical emergency. Although foreign body ingestion is a common problem in children and elderly people, they are infrequently encountered in adults [1, 2]. Most of these foreign bodies leave the gastrointestinal (GI) tract spontaneously. Around 10–20 patients may require endoscopic removal and less than 1 require surgery [1, 2]. The most frequently encountered foreign bodies include needles, coins, batteries, various sharp objects, bone fragments, cartilages, pieces of plastic, glass, etc. It has been reported that perforations of the GI tract most frequently occurs at the narrowest parts of the bowel or at regions of acute angulation such as duodenum, ileo-cecal valve or rectosigmoid junction [3, 4].

3. Case Report

A 30 year old male was brought to accident emergency department

of skims medical college with a history of abdominal pain for last seven days. The pain was diffuse and moderate in nature. The patient gave history of ingestion of chicken bone while having meals two days before the onset of abdominal pain. Patient did not give any history of vomiting, bleeding with stool or any change in bowel habits. On examination patient had tachycardia with diffuse but mild tenderness all over the abdomen. All the baseline investigations were done which were within normal limits except for mild leucocytosis. On X-ray abdomen, a very thin rim of gas could be seen under diaphragm right side (Figure 1). CT abdomen was advised which reported a foreign body in the second part of duodenum along with minimal free fluid and fat stranding around the third part of duodenum (Figure 2). Since the patient was clinically stable with minimum signs of peritonitis, UGI endoscopy was planned. On endoscopy a piece of bone was seen which was borrowing transversely into the duodenal wall at D2 level (Figure 3). On pulling the free end of the bone, it went into D3 vertically and could not be retrieved. Patient was put on IV line, IV antibiotics and observed closely in the hospital. Patient improved clinically, moved normal colored stool, tolerated orals and was finally discharged without any further intervention five days after endoscopy. Patient was followed up in the OPD on weekly basis for a period of one month.

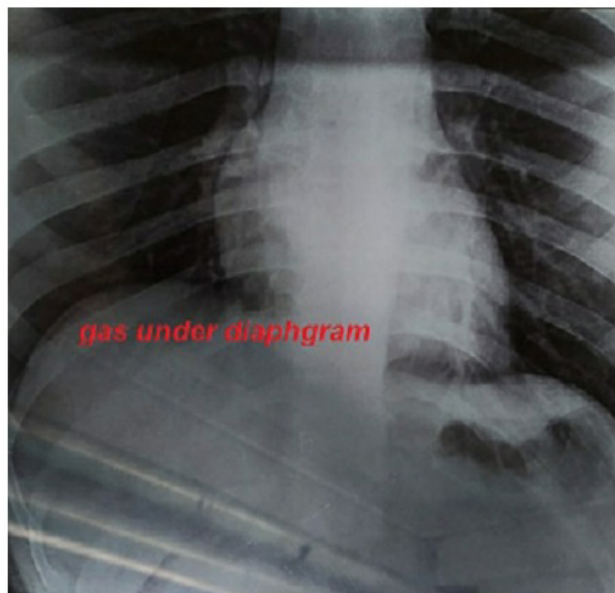


Figure 1: X-Ray chest of patient with gas under diaphragm



Figure 2: CT Abdomen showing duodenal edema and high density area due to foreign body



Figure 3: Chicken bone seen burrowing the wall of duodenum

4. Discussion

Accidental ingestion of foreign bodies although rarely seen in adults is a common problem in childhood. In adults foreign body ingestion is usually seen in alcoholics, drug abusers, elderly individuals with dentures, prisoners and individuals with mental disorders. It is also seen in people with fast eating habits and workers such as carpenters and dressmakers who have habit of holding small sharp objects in their mouths [5, 6]. Most of the foreign bodies pass uneventfully through the gastrointestinal tract and are excreted in the stool within 1 week [4]. Occasionally serious complications may occur such as obstruction, bleeding, perforation and peritonitis [7, 8]. Gastrointestinal perforation due to foreign body has been reported in less than 1 of all patients. The possibility of perforation depends on the length and sharpness of the swallowed object [7]. Ingested sharp bones, fish and chicken bones can lead to intestinal perforation and peritonitis [8]. Study conducted by Goh et al found that a fish bone was the most frequently encountered foreign body causing GI tract perforation [6]. On the other hand GI perforations caused by a chicken bone are less frequently reported.

Generally patients do not reveal any history of a foreign body ingestion and is usually detected on imaging studies or during surgery [5, 7]. Plain X-ray is simple and useful and first line investigation for diagnosis of ingestion of metallic foreign body. Gas under diaphragm is diagnostic of gut perforation. Abdominal CT may be helpful in patients with features of peritonism [7]. Since the clinical features are non-specific, intervention usually gets delayed and most of them are managed non-operatively. In those cases where the intervention is needed, treatment is decided according to type of foreign body, its location and clinical features of the patient [6, 8]. Flexible Endoscopy is the first choice for the removal of the foreign object in upper GI tract. Endoscopic removal may be possible in up to 10 of the cases [6, 7]. Surgical exploration may be necessary when the clinical course of the patient deteriorates or when there is a foreign object within the abscess [7, 8]. Although the technique of foreign body extraction under endoscope is very safe, but an extraction of foreign body more than 5 cm with an endoscope often results in serious complications such as perforation or GI bleeding [5, 7].

Sidiqui et al [9] reported two cases of successful endoscopic removal of foreign body from the stomach. On examination both patients were haemodynamically stable with localised epigastric tenderness. CT abdomen was done in both patients. In one of the patients, scan revealed a foreign body in the stomach penetrating the full thickness of the gastric wall with the tip lying outside the lumen. Patient was subsequently taken for endoscopy and a chicken bone was found perforating the wall of the stomach. This chicken bone was removed via snare and endoscopic clips were used to close the site of perforation. Wang L et al [10] reported a 38-year-old male patient with GI tract perforation in the bulb of the duodenum due to a leg of glasses. The patient was admitted with severe abdominal pain and

right upper quadrant tenderness on physical examination. Laboratory test revealed leukocytosis. Plain X-ray and computerized tomography showed an ingested foreign body in the bulbous of the duodenum. The patient was managed endoscopically and a leg of glasses perforating the duodenum was identified. They used a Dormia basket to pull the foreign body, followed by carefully withdrawing it back into the stomach. Titanium clips were successfully used to close the duodenal perforation through purse string suture, and the leg of glasses was subsequently removed out. Patient was discharged without any complications on the eighth day after endoscopy.

5. Conclusion

Complications due to ingested bone fragments are not common and preoperative diagnosis remains a challenge. The patient's medical history can be misleading and the clinical symptoms are nonspecific. In selected cases, endoscopic management is cost-effective, minimally invasive with less post-operative complications and more expeditious recovery. Therefore, therapeutic endoscopy should always be considered for management of foreign body ingestion.

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