



RESEARCH ARTICLE

CELIAC DISEASE, A CAUSE FOR CAPSULE ENDOSCOPE RETENTION

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Abstract

The capsule endoscope was introduced to the market over a decade ago. It is considered an addition to the diagnostic armamentarium for many gastrointestinal (GI) diseases including GI bleeds, Crohn's disease, celiac disease, and surveillance of familial polyposis syndromes. The procedure is safe but retention is the most common complication. Here in this report a case of celiac disease and capsule endoscope retention which caused complete small bowel obstruction requiring emergent surgical intervention. The patient made full recovery.

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Introduction:-

Investigations for GI diseases have been developed over the years with better accuracy and less invasiveness. Capsule endoscopy (CE) was introduced in 2001 (1). The indications for its use have broadened over the years. CE carries some potential complications. The most common is retention which usually is asymptomatic. The retention duration varies as demonstrated in several reports. Interventions to retrieve the retained capsule depend on the degree of symptomatology of the patient and the underlying disease.

Case Report:-

We present a case of a 16-year-old male with a known case of celiac disease (CD). He presented to our emergency room with abdominal pain and distention for 2 days duration. Upon questioning it was revealed that he was admitted several weeks earlier in another hospital for investigation of his weight loss and abdominal pain. The results of his investigations were not conclusive at that time. Therefore, he was scheduled for capsule endoscopy. The procedure took place 3 weeks before his current presentation. The patient had the impression and misconception that the capsule endoscope could stay for long time without a problem. He was demonstrating a picture of a complete intestinal obstruction, abdominal pain, abdominal distension, and obstipation. Results from a systemic exam were unremarkable. An abdominal exam revealed a scar from a diagnostic laparoscopy done 2 years earlier to treat his CD. On physical examination, a diffusely distended abdomen with hyperactive bowel sounds were elicited. The patient showed no evidence of hernia. The results from his laboratory investigations were within normal ranges apart from iron deficiency anemia. An abdominal x-ray showed a retained capsule endoscope in the small bowel (Figure 1). A computed tomography (CT) scan of the abdomen with double contrast confirmed this finding (Figure 2). Due to his previous surgery with the expectation of extensive adhesion, we elected to go for an exploratory laparotomy which revealed a dilated small bowel with a grossly diseased ileal segment around 60 cm proximal to the ileocecal junction. The bowel wall was thick and erythematous with areas of multiple strictures (Figure 3a). The capsule endoscope was impacted between 2 stricture points. Enterotomy and complete extraction was achieved (Figure 3b).

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The patient tolerated the procedure well and had an uneventful post-operative course. He was referred to his original hospital to complete the investigations and further management.

Discussion:-

The capsule endoscope was introduced to the market over a decade ago. Currently three companies manufacture it: PillCam SB, Given Imaging Ltd., Yokneam, Israel;

Olympus EndoCapsule from Olympus, Tokyo, Japan and OMOM capsule endoscope from Jinshan Science and Technology Group, Chongqing, China. The capsule size is a 26 by 11 mm containing a battery-powered, complementary metal oxide silicon imager (CMOS), a transmitter antenna and four light emitting diodes. It takes 2 images per second through a transparent plastic dome of the capsule (2,3). Once swallowed, it is propelled through the intestine by peristalsis. The spectrum of capsule endoscopy indication has increased over the last few years. The main indication so far is for obscure gastrointestinal bleeding accounting for 70-80% of the cases. The diagnostic yield approaches 80%. Crohn's disease involves small and large bowel in 45% of the cases, 25% and it is usually confined to small bowel primarily the ileum (4). Damage from non-steroidal anti-inflammatory drugs (NSAID) can also be diagnosed by the capsule endoscope which reveals the mucosal damage. It has to be emphasized that this lesion, mainly ulcerations, can present in 10% of healthy individuals. Small bowel tumors are rare comprising only 1-3% of all GI malignancies can be as well diagnosed by the endoscopic capsule (5). Increased reporting has increased the incidence to 6-9% of all GI malignancies. Surveillance became an established indication especially in familial polyposis coli (FAP) & PeutzJegher syndrome (3). Other indications in rare clinical syndromes include: undetermined colitis, small bowel transplant graft versus host disease, protein losing enteropathies, primitive lymphangiectasia (in pediatric population), Whipple's disease, and irritable bowel syndrome. Capsule endoscope has been indicated in celiac disease as adjunct to the gold standard gastroscopy with duodenal biopsy (4). However, it can be a suitable procedure in patients with high suspicion who may be unable or unwilling to undergo the traditional endoscopy. The procedure is indicated to rule out malignant neoplasms associated with celiac disease namely, primary enteropathy-associated t-cell lymphoma (EATL). It is also indicated to rule out other known complication such as ulcerative jejunitis. The time frame for capsule endoscope evacuation varies among patients but 2 weeks is generally accepted (6). The longest retention in the literature was 2 years (2). Thereafter, intervention by medical or invasive means such endoscopy, laparoscopy or laparotomy as in our case can take place especially if the patient is symptomatic. Retention is reported in 2% of cases and usually asymptomatic but perforations have been reported as well (7). The highest risk of retention is reported in patients with chronic NSAID use, extensive Crohn's enteritis, abdominal radiation injury, prior abdominal surgery, prior small bowel resection, and in our case celiac disease (8). This case address 2 issues: 1st the emphasis on patient education and complete understanding of the process of diagnosis with the expected time frame as well as the patient's full awareness of potential red flags and complications; 2nd, the relative contraindication for capsule endoscope use in stricture-forming diseases such as CD. Some groups, however, used this relative contraindication as a guide to stricture causing chronic obstruction to resect the narrowed segment.



Figure 1:- Plain abdominal x-ray showing the endoscopic capsule in the small bowel.



Figure 2:- CT scan of the abdomen with IV & oral contrast confirming the location of the endoscopic capsule



Figure 3a:- Intra-operative picture showing the grossly diseased segment of the ileum with points of strictures.



Figure 3b:- The extraction of the endoscopic capsule

Conclusion:-

Capsule endoscopy is considered an investigative modality for many GI diseases. The risk of retention has to be considered on an individual basis. Patient education cannot be overemphasized to prevent delayed type of retention and bowel obstruction consequently.

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