Endoscopic dealing with obstructed colonic & bowel disorders (colonic stenting & dilatation for obstruction & leakage site)

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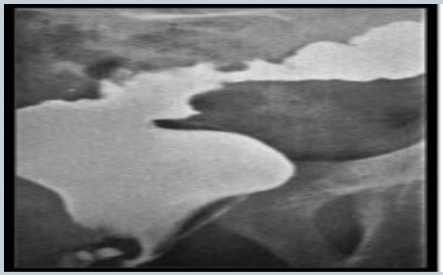
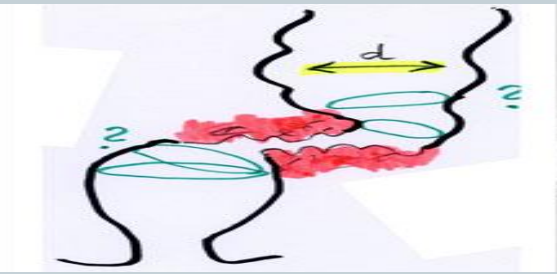
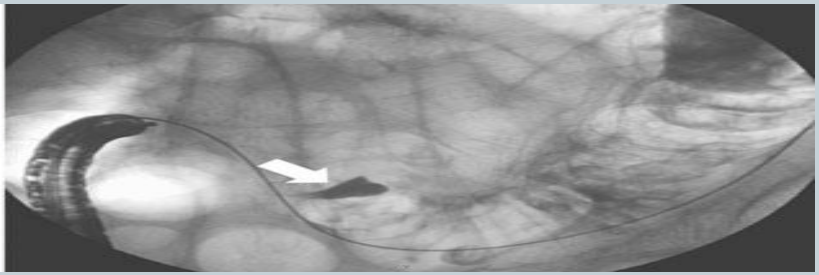






- Large bowel obstruction is a common problem with many different causes, the most common being colorectal adenocarcinoma, extracolonic adenocarcinoma, diverticular disease, volvulus, and inflammatory bowel disease.

- The nature of the obstruction influence the best management. Treatment consisted of surgical removal of the obstruction if possible and decompression of the bowel with an ostomy. Other strategies for managing obstruction have evolved as alternatives to stomas, including primary resection with anastomosis and endoscopic stent placement.

- Colonic stenting is being increasingly used as a non-surgical alternative for colonic obstruction, both as a definitive palliative option and as a bridge to surgery.
- Colonic obstruction can be due to a primary colonic malignancy or secondary to extrinsic compression from a non-colonic malignancies.
- Colorectal cancer is one of the most common malignancies and 80% of the colonic obstructions are caused by a colorectal primary malignancy of these up to 30% of cases present as an acute colonic obstruction.

- Patients with acute malignant colonic obstruction have a 5-year survival rate of less than 20%, a less favorable prognosis compared to patients with colonic malignancy without obstruction.
- Without urgent decompression of the obstruction, the patient can suffer severe complications.
- Emergency surgery is associated with high morbidity (40–50%) and mortality rate (15–20%) compared to elective surgery where the mortality rate ranges between 0.9% and 6%.

- Emergency surgery for colonic obstruction often requires a two-stage procedure, with either primary resection and proximal diversion followed by later closure of the stoma or a primary decompression through stoma formation and later colonic resection.
- No significant evidence determined which approach is preferable in left-sided colonic obstruction. Right-sided obstruction can often be managed with resection and primary anastomosis as one-stage procedure. Due to multiple factors, when fecal diversion is undertaken in the emergency setting, stomas could be permanent in greater than 30%.

- Colonic stenting is not without risks. Severe complications can occur including perforation during and after stenting. Such event can negatively impact the long-term survival in patients due to risk of tumor seeding. This is a particular concern in patients with potentially curable disease.

- In a recent Cochrane review by Sagar J, the use of colonic stents in acute colonic obstruction was compared with emergency surgery. The clinical success rate was higher in the emergency surgery group, but the use of SEMS was safer, with lower morbidity and mortality rates, and the advantage of shorter hospital stay.

- Sagar J. Colorectal stents for the management of malignant colonic obstructions.cochrane database syst. Rev. 2011 (11)

Stenting indication

- **Palliative stenting:** in patients with un-resectable colorectal cancer or those who are considered medically unfit for surgery with symptomatic colonic obstruction
- **Stenting as a bridge to future surgical intervention:** considered tin acute colonic obstruction, will allow to convert an operation from an emergent to an elective setting, staging of the cancer, correction of any electrolyte imbalance, the medical optimization, and bowel preparation can decrease the morbidity of surgical intervention

Stenting indication

- **Management of extrinsic colonic obstruction:**

Most large bowel obstructions are the result of intrinsic occlusion by primary colorectal malignancy. However, extra-colonic conditions can cause extrinsic colonic stricture with occlusion of colonic patency.

- However, Luigiano et al, showed a lower patency rate in patients with extrinsic obstruction compared to those with intrinsic malignancies.

- Luigiano C. et al. Through-the-scope large diameter self- expanding metal stent placement as a safe effective technique for palliation of malignant colorectal obstruction: a single center experience with a long-term follow-up. Scand J Gastroenterol. 2011;46(5):591–596.

Stenting indication

- **Stenting for benign conditions:** Stenting benign colonic strictures such as those caused by diverticulitis, pelvic abscesses, radiation related strictures, inflammatory bowel disease, and ischemia is rarely done. Most available data is from case series. However, the clinical success rate of stenting benign colorectal strictures ranges from 42% to 100% with a reported clinical success rate of 25% to 87% in the literature.

Patient preparation and technical aspect of stent implantation:

- 1- Successful stenting of a colorectal stricture requires adequate visualization of the distal end of the stricture and successful Cannulation of the obstructed lumen.
- 2-Pre-procedural imaging to determine the exact location and the morphology of the stricture can be very helpful.
- 3-Prior to stenting, retrograde water-soluble enema examination is advisable in most cases to exclude other sites of colonic obstruction.

Patient preparation and technical aspect of stent implantation:

- A cecal dilatation of more than 10 cm carries a higher risk for colonic perforation. Patients who undergo stenting procedure under such circumstances should be approached with caution with minimal insufflation during the procedure.
- Prophylactic use of antibiotics can be considered, especially in acute obstruction with dilated colon because of the additional introduction of air during the procedure can lead to bacteremia and because of higher risk for micro-perforation or true perforation.

Type of stents and stent characteristics

- Various types of self-expandable metal stents, specifically designed for colonic use are now available on the market. Current colorectal stents are radiopaque, woven metal mesh with a cylindrical shape designed for self-expansion. Once deployed, stents continue to expand for 24–72 h to reach full expansion and incorporate into the surrounding tissue, thus anchoring the stent. The shape memory is activated by body temperature and gradually compress the stricture.
- Colonic stents can be covered or non-covered.

Type of stents and stent characteristics

- both covered and non-covered stents have similar technical (96.8% vs. 97.8%) and clinical success (90% vs. 96.7%) rates. Compared with covered stents, non-covered stents were associated with a lower late migration rate and higher tumor ingrowth rate thus providing prolonged stent patency. There was no significant difference in long-term tumor overgrowth with obstruction, early migration, perforation, or overall complication between the two groups.

- Zhang Y, Shi J, Song CY, Xie WF, Chen YX. Comparison of efficacy between noncovered and covered self-expanding metallic stents in malignant large bowel obstruction: a systematic review and meta-analysis. Colorectal Dis. 2012;14(7):367–374.

Type of stents and stent characteristics

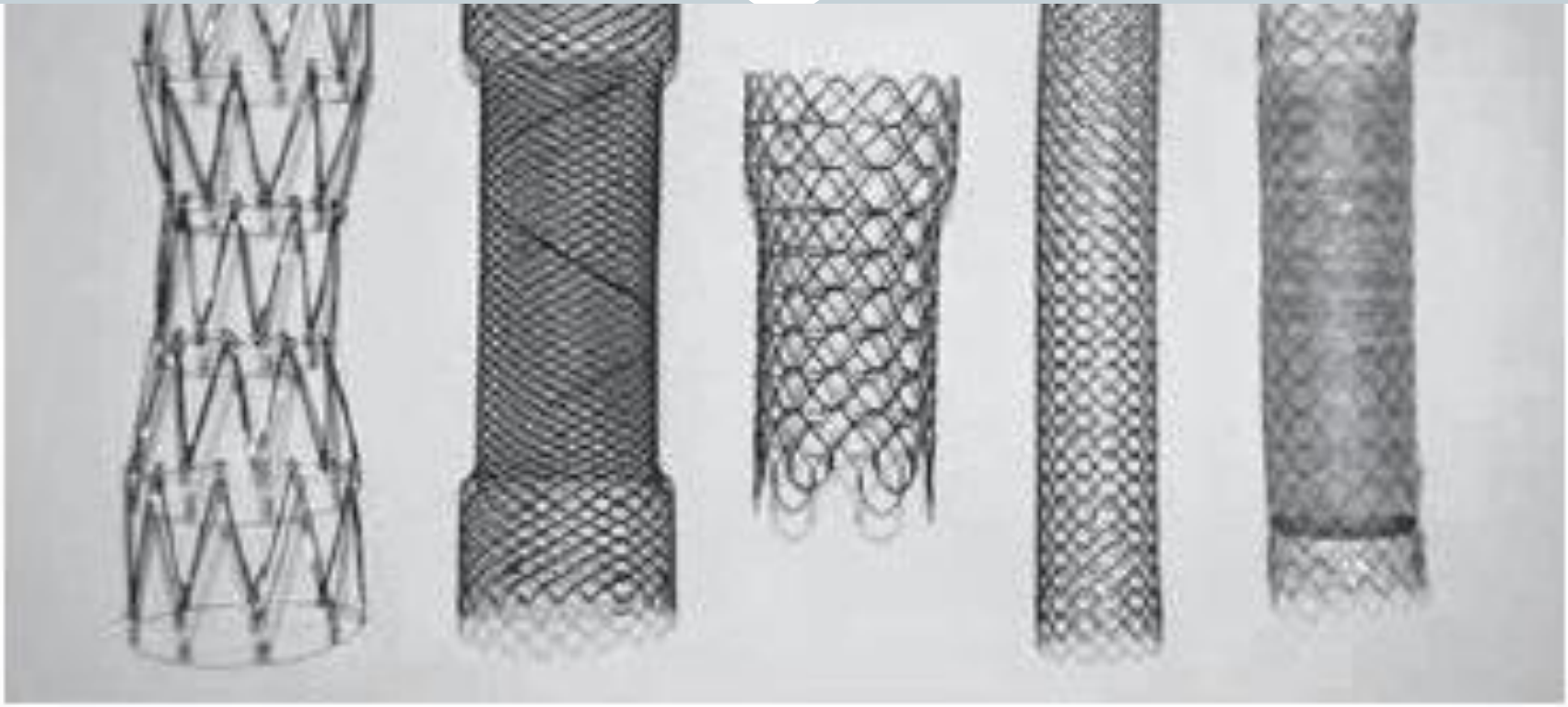


Figure 6. Colorectal stents, from left to right: Colonic Z (Cook), Evo-

Technique:

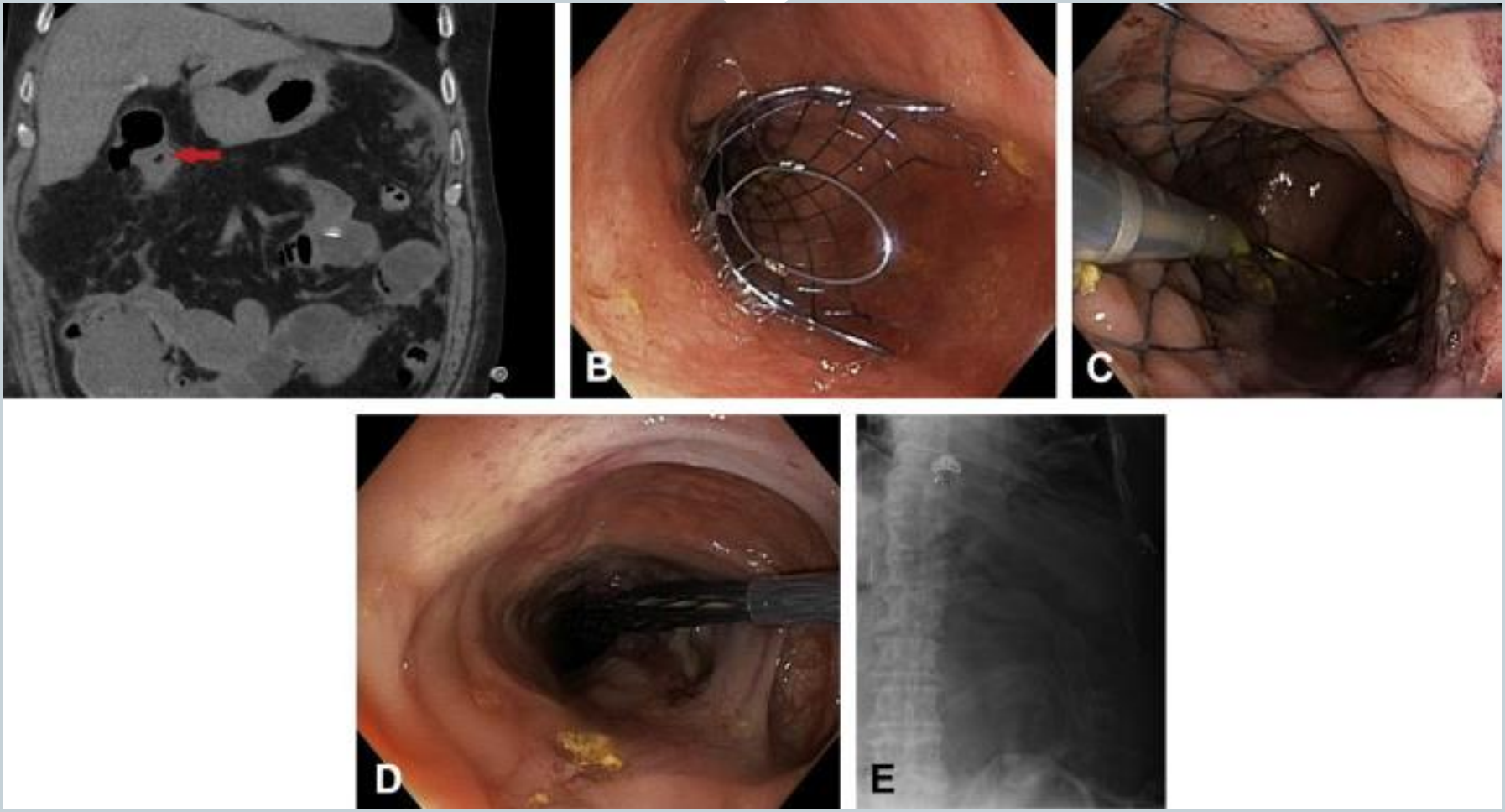
- Colorectal SEMS placement can be performed under fluoroscopic guidance and/or endoscopic insertion with or without aid of fluoroscopy using wide working channel endoscopy > 3.2 mm.
- It is preferred to do Colonic stent placement under endoscopic guidance combined by fluoroscopic guidance with stent deployment using through-the-scope (TTS) technique or over-the-wire (OTW stent placement or non-TTS) by using delivery system which is introduced besides the endoscope.

SEMS insertion under fluoroscopic guidance

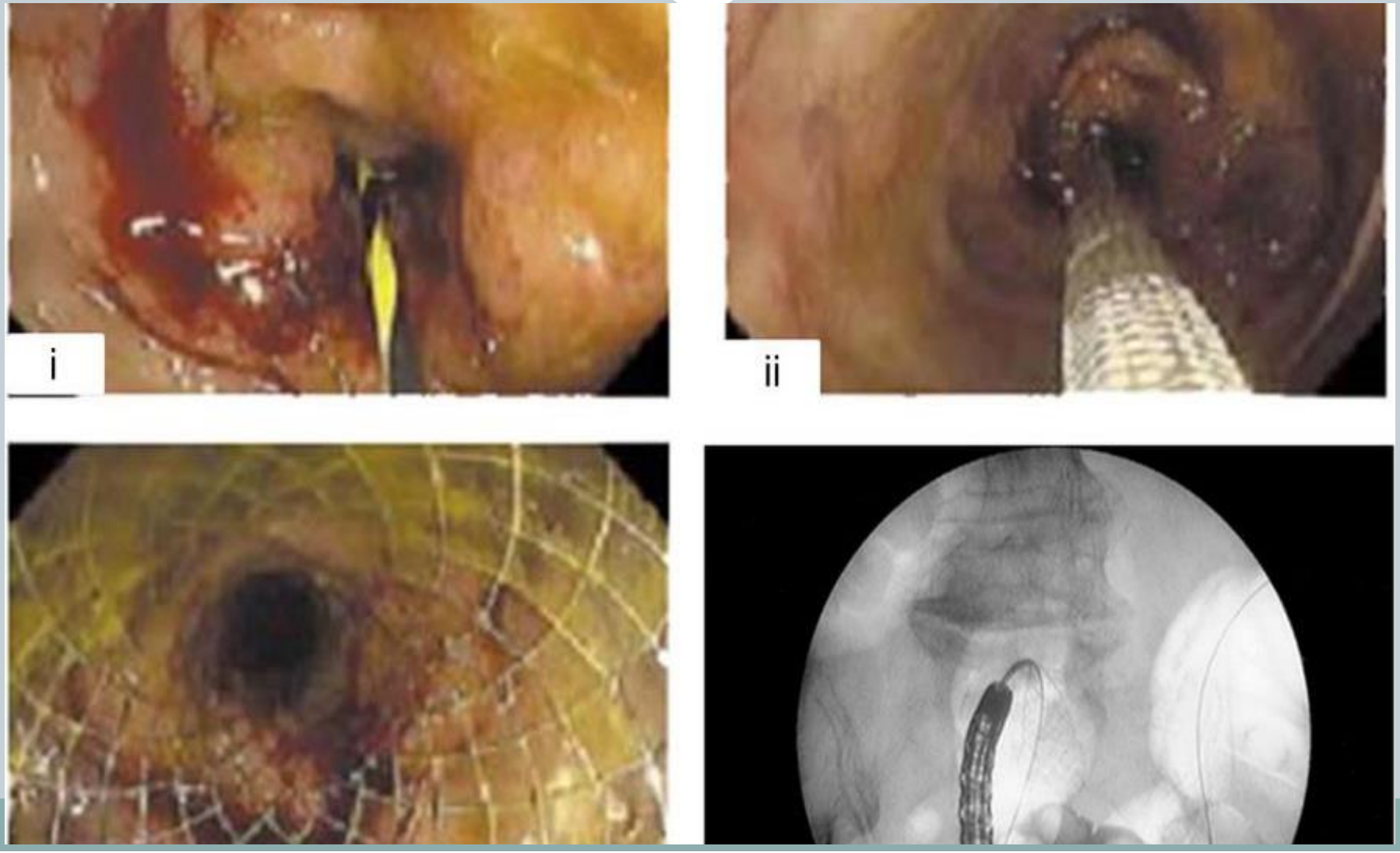
Endoscopic SEMS insertion without fluoroscopy

- This method is preferable if the opening through the stricture is wide enough to allow passage of the endoscope. In case of distal lesions, a gastroscope with a smaller diameter can be used. This method is preferable for left-sided colonic strictures. In case of through-the-scope stent placement (TTS), a guidewire is placed through the endoscope after the scope passes through the stricture and excess wire length is passed proximal to the lesion. The length of the stricture can be measured when the endoscope is with- drawn.

Endoscopic SEMS insertion without fluoroscopy



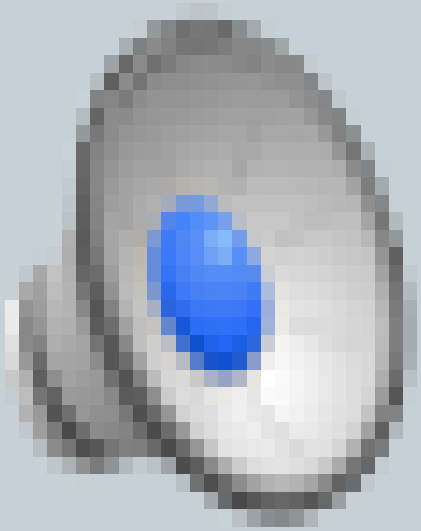
Endoscopic SEMS insertion with combined endoscopic & fluoroscopic control



Case 1:

- 55 years old male patient presenting in ER with acute bowel obstruction with intractable vomiting and no passage of fecal material and flatus with distended abdomen.
- Plain X rays abdomen standing and supine revealed air fluid level, further Triphasic CT abdomen confirmed descending colon malignant lesion totally obstructing the colonic lumen with liver, peritoneal and bone metastasis, after surgical & oncological consultation he was advised for further confirmatory colonoscopy for biopsy and if possible palliative stenting.
- After correction of the general condition colonoscopy was done and revealed:

Second Case: Colonic malignant Obstruction (stenting)



Case 2:

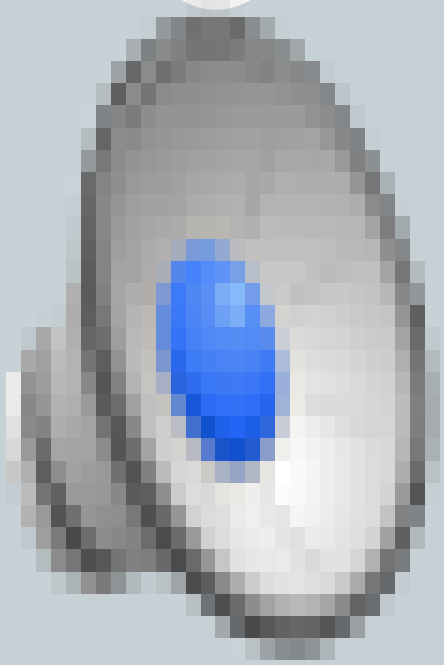
- 46 years old male presented with marked loss of weight, abdominal distention, Anorexia, frequent vomiting and alternating bowel habits, bleeding per rectum and mucoid stool.
- CT enterocolongraphy revealed mass in the right hepatic flexure with partial obstruction of the colonic lumen, no metastasis, but some nodal abdominal involvement.
- Colonoscopy confirmed the malignant nature of the lesion and multiple biopsies were taken and proved to be colonic adenocarcinoma.
- Referred for surgery

Case 2:

- After the surgery I received a feed back form the surgeon that the operation was horrible as the CT was deceiving and the tumor was very large with extra-colonic extension, adhesive and inseparable from the antral gastric wall and he did ileo-transverse anastomosis in addition to a difficult problematic gastro duodenal by pass.
- Patient did well after surgery and was discharged to home 7 days after the operation and start eating.
- Three weeks later the patient came with severe intractable vomiting even to fluid he was admitted again to hospital and was put under observation with insertion of nasogastric tube and parental feeding.

Case 2:

- CT was done and showed hugely dilated stomach with obstruction at the anastomotic gastro duodenal site but with no evidence of any recurrence of malignancy suggesting post anastomotic tight stricture.
- He was planned for upper GI endoscope assessment which revealed the following:



Thank you