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Title: En-bloc resection of locally perforated colonic malignancy with removal of iliopsoas and femoral nerve and primary anastomosis.

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En-bloc resection of locally perforated colonic malignancy with removal of iliopsoas and femoral nerve and primary anastomosis.

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Case Report

Managing colon cancers with local perforation can be challenging. A plethora of options exist for effective management including primary surgery, neoadjuvant chemotherapy, neoadjuvant chemoradiation, or neoadjuvant radiation alone. A subgroup that have colonic retroperitoneal or muscle perforations have traditionally been offered primary surgery with end stoma in the emergency setting. The authors have adopted a diversion first strategy, with long course chemoradiation therapy administered despite a posterior based abscess described in the case below, allowing for downstaging of the primary tumour and sterilisation. This is followed by en-bloc resection of the affected colon, and the required posterior compartment including the associated muscle belly containing the abscess, and nerve if involved. Such a radical and wide approach allows the whole specimen to be resected without breaching into the tumour cavity. This may theoretically reduce the risk of local recurrence, as well as mitigating the risk of future peritoneal disease.

We present the case of a 60 year old woman with left sided abdominal pain and rectal bleeding who underwent a colonoscopy that revealed an endoscopically impassable

descending colon malignancy. The CT Abdomen and Pelvis revealed a left sided cancer infiltrating the left iliacus muscle with perforation into the psoas muscle belly (Figure 1). These findings were confirmed on a FDG-PET scan, with no clear evidence of distant metastases (pre-treatment staging T4bN2bM0 – Stage IIIC).

The patient was discussed at our multidisciplinary meeting and the consensus recommendation was neoadjuvant chemoradiation therapy. A single port loop ileostomy was fashioned and a pigtail drain was radiologically inserted into the abscess cavity. Despite some delays in therapy, the patient completed a long course of chemoradiation consisting of capecitabine and 50.4 Grays at the tumour bed in 28 fractions. Four weeks following completion of the chemoradiation, the restaging imaging revealed a good metabolic response (Figure 2) with structural downstaging of the cancer (T4bN0M0 – Stage IIB).

The patient eventually had an open anterior resection with en-bloc muscle resection. Intraoperatively, the left ureter was first identified and preserved. Lateral dissection of the colon was performed with complete splenic flexure mobilisation. The inferior mesenteric vein (IMV) was ligated proximally at the inferior border of the pancreas. The inferior mesenteric artery (IMA) was ligated proximally at the level of the aorta. The colon was then divided proximally and distally at the rectum to facilitate the retroperitoneal dissection. This left the posterior attachments to the muscle as the final dissection plane (Figure 3 A). The left external iliac artery formed the caudal lateral

portion of the dissection. The artery was mobilised to the level of the femoral canal, in order to medialise the artery, giving maximum exposure to the left posterior compartment (Figure 3 B). Following this dissection, the left psoas belly was exposed entirely, and half the psoas muscle, femoral nerve and entire iliacus muscle were resected (Figure 3 C) so that the abscess cavity was not entered. Following an R0 resection a colorectal anastomosis was fashioned. Postoperatively the patient had an ileus and a left sided hip flexor weakness that improved with intense physiotherapy. She was discharged from hospital after three weeks. The histopathology revealed a moderately differentiated adenocarcinoma invading to subserosa with clear margins and no evidence of malignancy in 26 lymph nodes (T3N0 – Stage IIA). Of note, there was no tumour evident at the site of healed tumour perforation following neoadjuvant therapy.

Discussion

Multivisceral resection with negative margins (R0 resection) is the single most important factor influencing local recurrence, and has been incorporated into guidelines for locally advanced malignancies since 2000 (1). Achieving R0 resection has been shown to be more successful following neoadjuvant therapy. The phase III FOxTROT trial demonstrated that the use of neoadjuvant chemotherapy halved the rate of incomplete resection, undoubtedly in part due to a marked downstaging of the primary tumour (2). Using a combination of neoadjuvant chemoradiotherapy for advanced colonic malignancies has only been explored in a few small case series,

which report successful R0 resection rates between 91-100% (3-5). These rates are consistent with those reported in other advanced gastrointestinal malignancies (6-9) and are again demonstrated in this case. Furthermore the reduction in the incidence of local recurrence is further evidence to support the use of neoadjuvant therapy prior to resection (10). While radiotherapy is not without side effects, particularly related to irradiation of normal locoregional tissues and enterocolitis, this was less of a concern in the current case due to the substantial resection required to achieve R0 resection. This case demonstrates the advantage of diversion and neoadjuvant therapy prior to multivisceral resection, and reinforces the authors belief that a perforated malignancy with abscess formation is not a contraindication to chemoradiotherapy. Ultimately it highlights the importance of patient care in the multidisciplinary setting for complex locally advanced colorectal malignancies.

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Figure Legends

Figure 1: Pre-treatment CT (Left) and FDG-PET/CT (Right) demonstrating large sigmoid primary tumour with perforation and abscess formation within iliopsoas (yellow arrow).

Figure 2: Post-treatment CT (Left) and FDG-PET/CT (Right) demonstrating almost complete metabolic response to tumour with residual intramuscular abscess.

Figure 3: En-bloc resection of sigmoid tumour with iliopsoas and femoral nerve. A- exposing psoas (green arrow). B- Excision of tumour and muscle, with preservation of external iliac artery (Red sling) and left ureter (yellow sling). ASIS visible (white arrow). C - Post excision defect with iliac bone visible in centre of image.

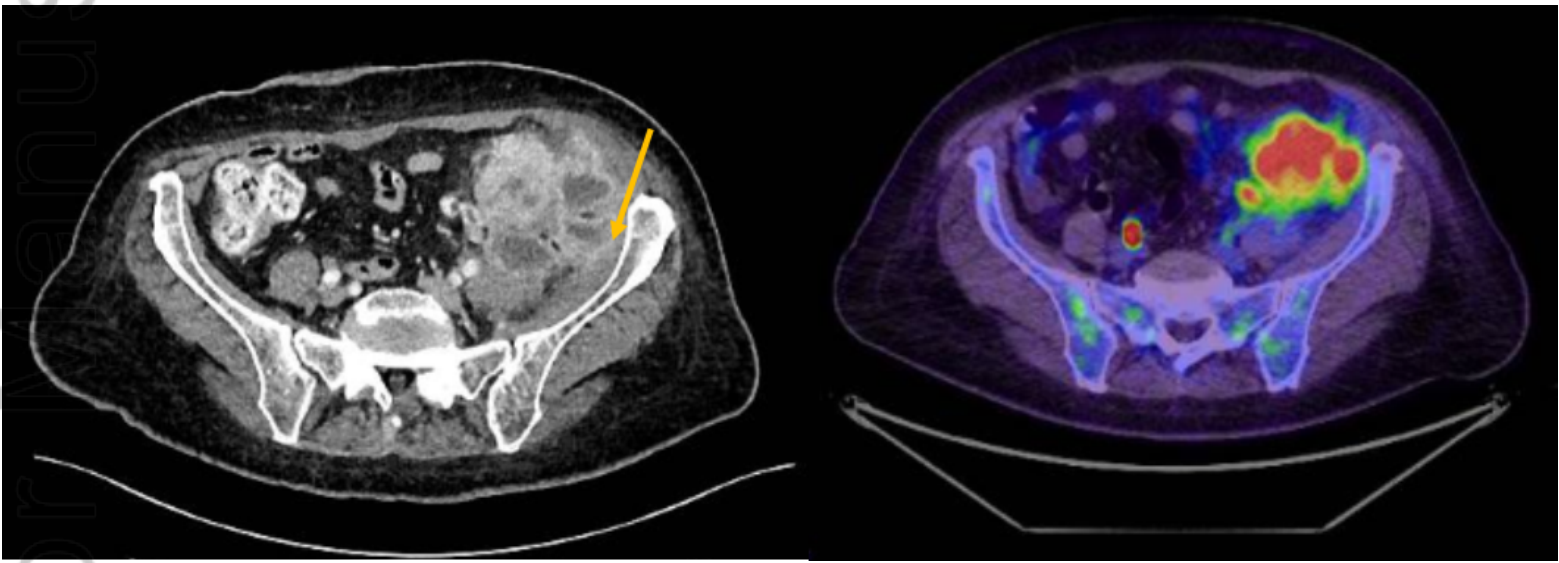


Figure 1.png

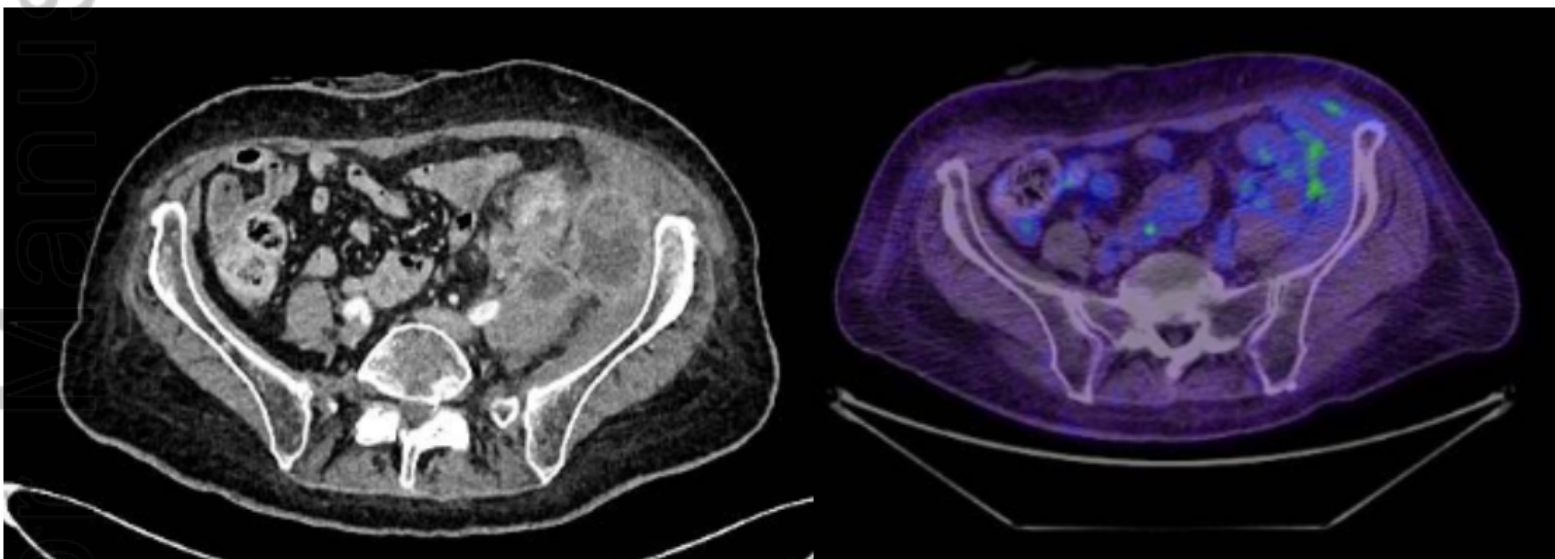


Figure 2.png

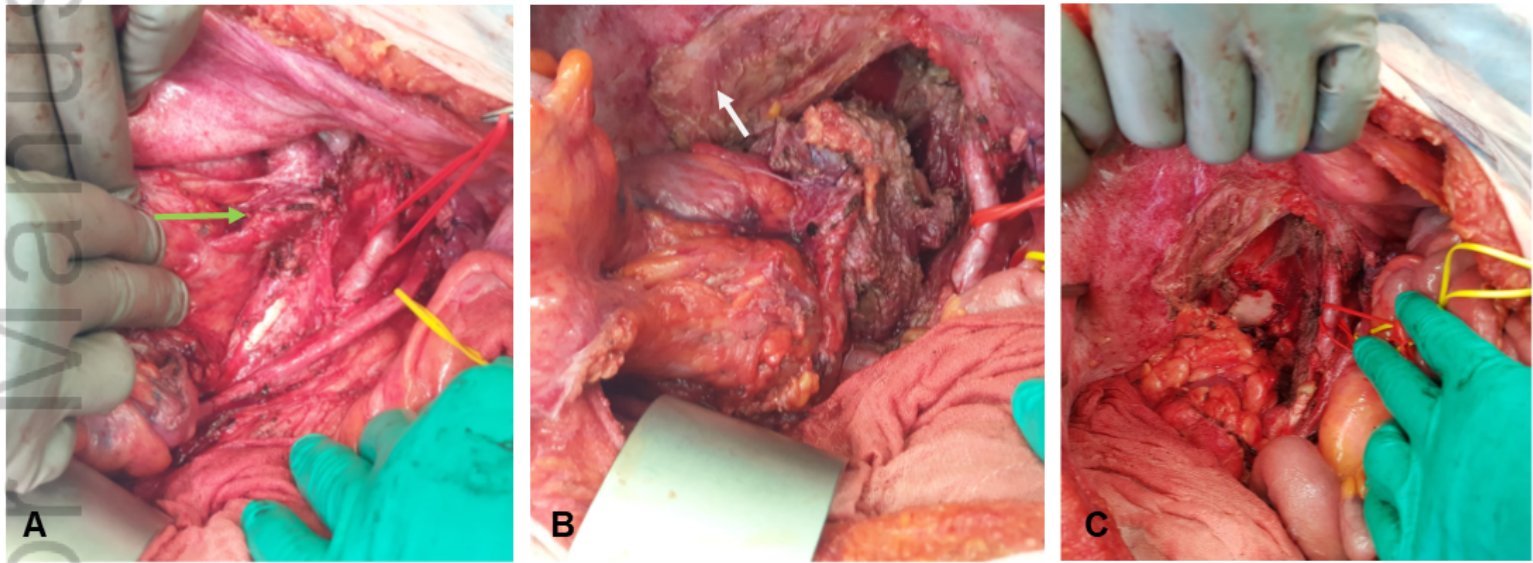


Figure 3.png