

Extended surgery with en bloc resection of the right external iliac vessels for lymph node metastasis of colon carcinoma, a case report

Ehab Said, MBBCh^{1,2,3}, Kishen Raj Chandra Sakaran, MBBS⁴, Putera Mas Pian, MD^{4,6}, Sellymiah Adzman, MBBS⁵

¹Surgical Department, Kuala Lumpur Hospital, ²Surgical Department, University Malaya Medical Centre, ³MRCs Edinburgh, ⁴Surgical Department, Hospital Universiti Kebangsaan Malaysia, ⁵Pathology Department, Kuala Lumpur Hospital, ⁶Fellow of Vascular Surgery Fellowship Ministry of Health Malaysia

SUMMARY

We report herein the case of a 26-year-old woman who underwent surgery for recurrent adenocarcinoma of the caecum. Recurrent metastatic lymph nodes had invaded the right external iliac vessels. Neither distant metastases nor peritoneal dissemination were recorded. Extended surgery with en bloc resection of the right external iliac vessels, right kidney, right ureter, uterus, bilateral ovaries and bilateral fallopian tubes and femorofemoral bypass were performed. Postoperatively, the patient recovered well and was discharged 3 weeks after surgery. The procedure may well significantly prolong survival time and improve quality of life of patients with identical or very similar conditions.

INTRODUCTION

In the majority of cases, patients with recurrent colorectal adenocarcinoma are not made to undergo re-resection and neither do they respond well to chemotherapy. It has however been established that patients with resectable recurrent tumours usually have longer-term survival than those with unresectable tumours.^{1,2} This report describes the case of a patient in whom extended lymphadenectomy for recurrent adenocarcinoma was successfully performed with en bloc resection of the right external iliac artery and vein.

CASE PRESENTATION

A 26-year-old female patient was found to have a tumour in the right lower quadrant of the abdomen by a computed tomography (CT) scan. She had previously undergone a right hemicolectomy having been diagnosed with poorly differentiated adenocarcinoma of the caecum. Pathological findings demonstrated that cancer cells had invaded through the muscularis propria into pericolorectal tissues with vascular invasion and metastasis to one regional lymph node. Adjuvant chemotherapy with oral capecitabine and oxaliplatin was prescribed post surgery; however the patient had low tolerance towards the chemotherapy regime. The treatment was subsequently terminated at the end of the fifth cycle. A CT scan surveillance done five months later showed soft tissue lesion, 2.8 X 3.2 X 4.7 cm in size with adjacent clumping of small bowel loops at the side of a previously enlarged necrotic node anterior to the right psoas muscle. It was suspected to be a local recurrence with extensive portal vein and superior mesenteric vein thrombosis (Figure 1). A

much delayed Positron Emission Tomography (PET) scan later confirmed the hypothesis was a correct one. The tumour had by then enlarged to 5.3 X 6.4 X 5.4 cm in size and had infiltrated into the adjacent small bowel loops, right common iliac vessels, right adnexa and right distal ureter causing right obstructive uropathy (Figure 2). Several repeated examinations later concluded that no other distant metastases or malignancies of the remnant colorectum were present.

A multi-disciplinary team comprising of colorectal surgeon, vascular surgeon, orthopaedic surgeon, gynaecologist, urologist, pathologist and radiologist recommended excision of the tumour to which the patient consented. The procedure was made according to the standard operation and guidelines in Ministry of Health of Malaysia; (General Surgical Services Operational Policy 2018, Safe Surgery Guidelines 2018, General Hospital Operational Policy and Clinical Practice Guidelines for the Management of Colorectal Carcinoma).

A laparotomy was performed after a lapse of six months based on the diagnosis of local recurrence of metastatic lymphadenopathy. A tan-greyish tumour with areas of necrosis and ulceration was found to have invaded the right external and internal iliac vessels. The fundus of uterus, right ovary, right fallopian tube and right ureter were also observed to have been infiltrated. However, no peritoneal dissemination or other lymphadenopathies were observed. The tumour was resected together with segments of incorporated small bowels, right external iliac vessels, right kidney, right ureter, bilateral ovaries, bilateral fallopian tubes and uterus. A femorofemoral bypass with a polytetrafluoroethylene graft was also carried out.

Grossly, the right external iliac vessels, the right ureter, right ovary and right fallopian tube were completely embedded in the tumour which was probably composed of conglomerated lymph nodes. Microscopically, the tumour was confirmed to be metastasis of poorly differentiated adenocarcinoma to the lymph nodes. Its histology was essentially identical to that of the caecal adenocarcinoma resected previously (Figures 3 - 5). The re-sectioned margins were free of tumour cells. No malignancy was identified in the right kidney, right ureter, uterus, right ovary and fallopian tube. Postoperatively, the patient recovered well and was

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Corresponding Author: Ehab Said

Email: ehab.said.talib@gmail.com; saidtlb@yahoo.com

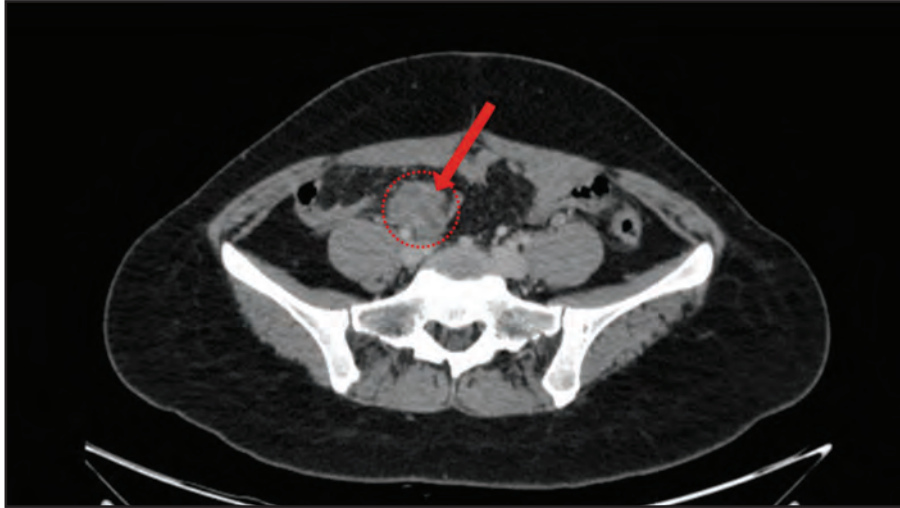


Fig. 1: Pre-operative contrast enhanced computerized tomography of the thorax and abdomen showing local recurrence. (Four months post surgery).

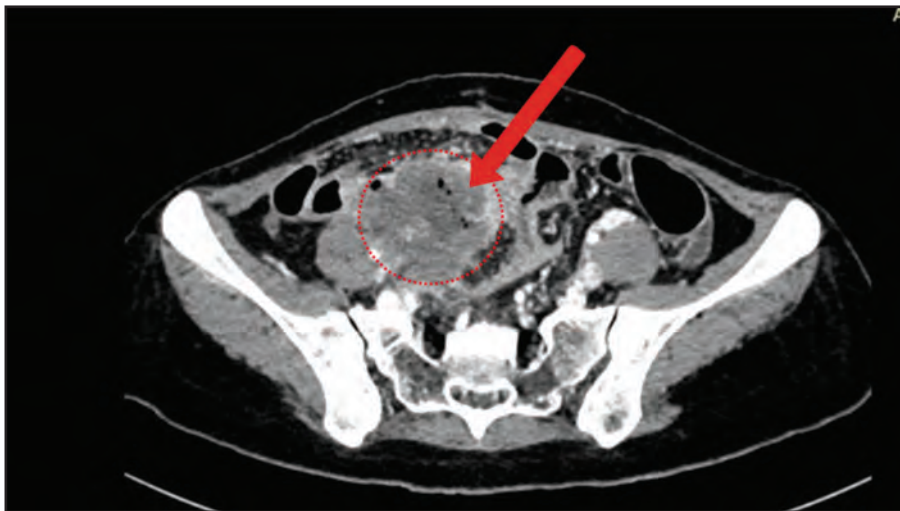


Fig. 2: Preoperative contrast enhanced computerized tomography of the thorax and abdomen showing tumour infiltration into adjacent small bowel loops, right common iliac vessels, right adnexa and right distal ureter (30 weeks post surgery).

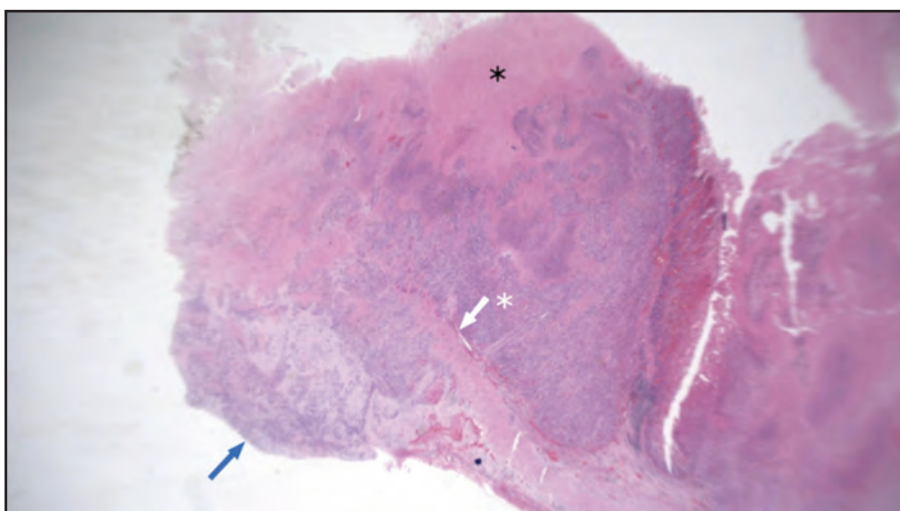


Fig. 3: The tumour has ulcerated and necrotic mucosal surface (black asterisk *). The viable tumour (white asterisk *) has infiltrated the muscularis propria layer (white arrow) and serosa (blue arrow) [H&E,x20].

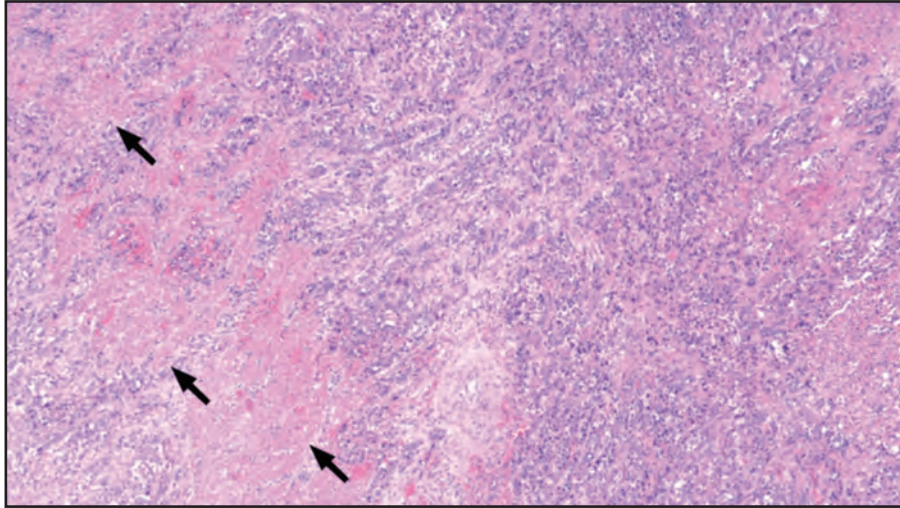


Fig. 4: Higher power showing the tumour cells infiltrating the muscularis propria layer (black arrows). The tumour cells mainly arranged in cords with no obvious tubular or glandular formation [H&E, x40].

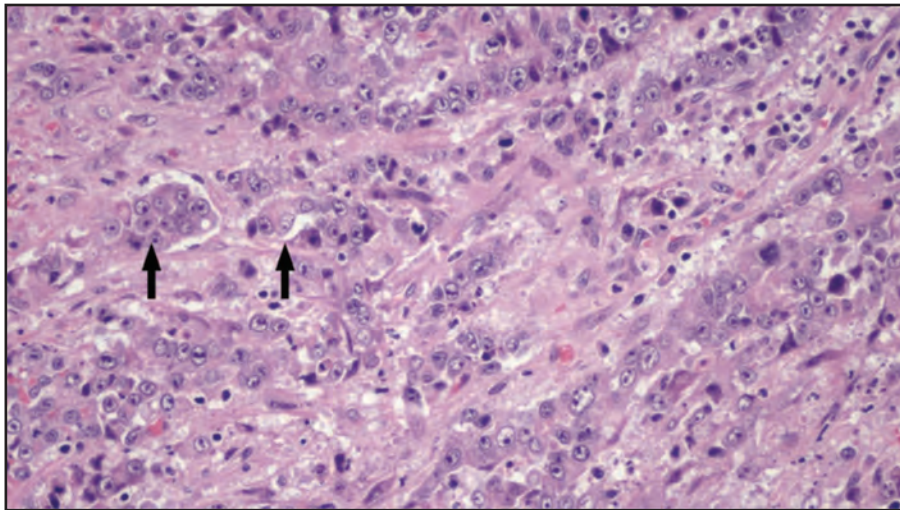


Fig. 5: The tumour cells have pleomorphic vesicular nuclei, prominent nucleoli and moderate amount of cytoplasm. There is also intratumoural lymphocytic infiltration. Some vague glandular formation is appreciated (black arrows) [H&E, x200].

discharged three weeks later. She was given five courses of weekly chemotherapy, as 5-fluorouracil 500mg/m² and leucovorin 30mg/m². Peritoneal dissemination was subsequently identified by computed tomography (CT) after her operation, and she died 4 months later

DISCUSSION

Poorly differentiated adenocarcinomas of the colon and rectum seem to be more aggressive and are accompanied by less favorable prognosis than lesions classified as well-differentiated adenocarcinomas as observed by D'Eredita et al.³ It has been suggested that poorly differentiated adenocarcinomas may have an increased incidence of local extension, resulting in lower rates of curative and overall resection. More significantly, poorly differentiated adenocarcinomas might also have an increased incidence of both local recurrence and distant metastases that lead to

decreased overall survival, particularly when the tumour is located in the rectum or rectosigmoid area.

Local recurrence is more frequently observed in patients with poorly differentiated adenocarcinoma than in those with well-differentiated adenocarcinomas. Post resection local recurrence of colorectal tumors may occur via operative implantation of viable cells or as a result of growth of residual tumour cells as suggested by Welch et al.⁴ Aggressive surgical excision is therefore required, with wide margins and complete dissection of the tumour extending into adjacent structures with systemic lymphadenectomy. Recent improvements in radiation technology and chemotherapeutic agents now allow better targeted treatments according to the observed pattern of recurrence. However, radiation therapy and chemotherapy alone have only a palliative effect, concluded Lopes et al.⁵

Femorofemoral crossover bypass is a surgical arterial revascularization modality which is commonly performed for unilateral aortoiliac occlusive disease. It is primarily applied to patients with intermittent claudication or chronic threatening limb ischemia in whom underlying anatomic constraints rule out endovascular means of restoring in-line flow and those who do not qualify for anatomic reconstruction due to the comorbid conditions that preclude a more invasive open surgical approach. Contraindications for femorofemoral crossover bypass surgery includes compromised inflow aortoiliac arterial segment, advanced obesity which can lead to unfavourable graft geometry, and excessive medical risks for all types of surgical procedures, stated Ascher et al.⁶ During early postoperative period, close hemodynamic monitoring is obligatory to optimize the outcomes. Standard anti-aggregant and/or anti-coagulant therapy should be initiated in early postoperative period. Another important issue is the care of surgical wounds, because existence of prosthetic graft increases the risk of infections caused by resistant microorganisms, thus surgical wounds should be examined meticulously in terms of early signs of infection, which should be treated immediately when observed. Prophylactic antibiotics should be administered before the future surgical procedures which can lead to bacteremia, like orodental interventions. Patients should be followed closely in terms of the development of potential complications. Reported primary patency rates vary between 71% and 94% at 1 year, 49% and 89% at 5 years, and 48% and 84% at 10 years, while secondary patency rates are between 79% and 98% at 1 year, 68% and 93% at 5 years, and 63% and 83% at 10 years as recorded by Johnson et al.⁷ The most observed complications following femorofemoral crossover bypass operation are hematoma, bleeding which required early reoperation, wound healing problems, superficial wound infections, graft infections, graft thrombosis and occlusion, and false aneurysm formation. Pai et al.⁸ observed that major amputation rates reported in the literature varies between 1.4% and 3.5%. The most preferred grafts for femorofemoral crossover bypass operations are synthetic grafts such as polytetrafluoroethylene and Dacron grafts. Autogenous grafts such as great saphenous vein are rarely used as femorofemoral crossover bypass graft. There are conflicting results regarding the use of great saphenous vein as femorofemoral crossover bypass graft in the literature. Mingoli et al.⁹ reported that 5- and 8- year patency rates of great saphenous vein graft were significantly lower than synthetic grafts. However, Pai et al.⁸ stated that great saphenous vein as a femorofemoral crossover bypass graft was as effective and durable as a synthetic graft. Nonetheless, it is known that great saphenous vein should not be used as graft material in the existence of deep vein thrombosis. Comparative studies related to graft choice in the literature have been most commonly focused on the comparison of Dacron and polytetrafluoroethylene (PTFE) grafts. These studies have demonstrated that Dacron and polytetrafluoroethylene (PTFE) grafts affect the short-term and long-term patency similarly, and there is no significant difference between both synthetic graft materials according to Johnson et al.⁷

After searching the database of Medline and Web of Sciences, only one case of extended curative surgery for metastatic lymph nodes of the colon with en bloc resection of the

common iliac vessels have been reported in the English language medical literature. Ueda et al.¹⁰ reported a case in 2001 in a 63-year-old woman who was found to have had a local recurrence of metastatic lymphadenopathy. She had previously undergone a right hemicolectomy under the diagnosis of mucinous carcinoma of the cecum. The patient underwent surgery and the tumor was resected together with the right common iliac artery, common iliac vein, ureter, invaded mesentery, and regional paraaortic lymph nodes, and a femorofemoral bypass with a polytetrafluoroethylene graft was carried out. Microscopically, the tumor was confirmed to be metastasis of mucinous carcinoma to the lymph nodes, the histology of which was the same as that of the caecal carcinoma resected at the previous operation. Postoperatively, a graft thrombosis developed which was successfully treated by prompt Fogarty catheter thrombectomy. The patient had adjuvant chemotherapy after the operation and died of disease 18 months later from peritoneal dissemination. If tumour cells have invaded the regional vessels, lymphadenectomy alone cannot remove all the malignant tissue, because cancer cells remain on the surface of regional vessels. While en bloc resection together with the invaded vessels can be curative, extended surgery, especially with resection of major blood vessels, is associated with higher rates of morbidity and mortality than palliative surgery. Moreover, in most countries, distant lymph node metastasis indicates systemic disease, so aggressive surgery is generally not performed. On the other hand, in Japan, systematic lymphadenectomy is thought to be the most effective procedure for prolonging the survival of patients with colorectal cancer as reported by Yoshida et al.¹¹ Although patients with distant lymph node metastasis have a poor prognosis, they may still undergo systematic lymphadenectomy in Japan, observed Masaki et al.¹² We believe that systematic lymphadenectomy is ineffective for paraaortic lymph node metastasis but that it is effective for regional lymph node metastasis. In our patient, no recurrent tumor was identified by radiological examinations although she died of peritoneal dissemination 4 months after her second operation.

Admittedly, our case and that reported by Ueda et al.¹⁰, differ significantly in age. However, we have not found literature that reported pathological difference between malignancies associated with age.

We suggest that extended lymphadenectomy with en bloc resection of invaded blood vessels for metastasis of colon carcinoma can prolong survival and enhance the quality of life as compared to palliative surgery alone. Therefore, it is important to carry out careful follow-up examinations for early detection of recurring tumours.

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