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Transpelvic Rectus Abdominis Flap for Perineal Reconstruction Following Abdominal Perineal Resection with En Bloc Partial Cystectomy and Prostatectomy for Locally Advanced Rectal Cancer

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ABSTRACT

We report a case of locally advanced carcinoma of the rectum invading the bladder and prostate in a young man treated initially with neoadjuvant chemoradiotherapy. This was followed by an en bloc resection of the tumour, partial cystectomy and prostatectomy and an abdominal perineal resection. The urinary bladder was reconstructed and a new bladder neck reimplanted into the proximal urethra where the sphincter had been preserved. There was extensive radiation changes to the perineal skin where a wide excision had been performed. The pelvic defect was reconstructed with a pedicled transpelvic rectus abdominis myocutaneous flap. The patient recovered uneventfully and remains well with no clinical evidence of recurrence 18 months post-operatively.

In very selected cases there is a definite role for neoadjuvant therapy and enbloc resection of the tumour followed by reconstruction of the perineum.

Keywords: locally advanced, carcinoma, rectum, neoadjuvant chemotherapy transpelvic rectus abdominis flap

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INTRODUCTION

Enbloc resection of rectal cancer together with involved adjacent organs (if necessary) has been advocated for good oncological clearance. In addition, recent data on preoperative radiotherapy have shown a significant effect on locally advanced carcinoma of the rectum resulting in possibly downstaging the tumour and thus improving resectability[1-3]. This has been argued to translate into survival benefits. Inclusion of chemotherapy in the neoadjuvant setting may improve these results[3]. Combined chemoradiotherapy has been shown in some studies to increase the morbidity of wound healing especially of the perineal wound after abdominal perineal resection. These complications can be overcome by using a transpelvic pedicled rectus abdominis flap to cover the pelvic defect left by the resection and to bring new skin and blood supply in order to aid in the healing of the perineal wound. We report a case where all these principles have been combined in the treatment of a young patient with locally advanced carcinoma of the rectum.

CASE REPORT

NKH presented with a two-month history of urinary urgency and hesitancy. A per rectal examination and biopsy revealed a large moderately differentiated rectal tumour, 3 cm from the anal verge invading the prostate anteriorly. There was no other significant findings on clinical examination. A thorough metastatic workup, including chest X-rays, CT scans of the abdomen for liver secondaries and a bone scan showed no evidence of distant disease. The CT scan of the pelvis confirmed the clinical impression of a large rectal carcinoma invading the posterior wall of the bladder and right lobe of the prostate. There was no evidence of obstructive uropathy.

The tumour was treated with a course of neoadjuvant chemoradiotherapy comprising of external beam radiation of a total dose of 50.4 Gy in 28 daily fractions given over 5 1/2 weeks in 2 phases, with intravenous 5-fluorouracil (325 mg/m^2) and folinic acid (20 mg/m^2) on days 1 to 5 and days 29 to 33. A repeat CT scan of the abdomen and pelvis showed the liver to be clear and the tumour to have shrunk in response to the therapy. There was extensive skin changes as a result of the radiotherapy in the groin and perineum. The patient underwent a laparotomy 6 weeks after the treatment. He was explored in the lithotomy position on Allen stirrups. Both ureters were stented prior to celiotomy. There was no evidence of any other intra-abdominal disease. An intra-operative ultrasound of the liver was normal. A large 8 cm tumour was found fixed to the posterior wall of the bladder and prostate. Fortunately, the tumour did

not involve both the ureteric orifices. The tumour was resected enbloc with a cuff of the posterior wall of the bladder and prostate. The urinary sphincters were saved in the prostatectomy. The resection was completed with a standard perineal dissection. Frozen sections of the resection margins were free of malignancy.

The remanant bladder was repaired and a neobladder neck fashioned and reimplanted into the sphincter. The proximal colon was brought out as an end colostomy at a pre marked spot in the left iliac fossa. The right rectus abdominis muscle was harvested as a pedicled myocutaneous flap based on the inferior epigastric artery and transposed transpelvically (Fig 1) to obliterate the pelvis. The skin of the flap was used to enable a tension free and well vascularised graft in the perineal wound. The whole operation took 4 hours and 55 minutes.

His post-operative recovery was uneventful and he was discharged on the 10th post-operative day. He is fully continent to urine post operatively and remains well 18 months after the surgery with no evidence of local or distant disease.

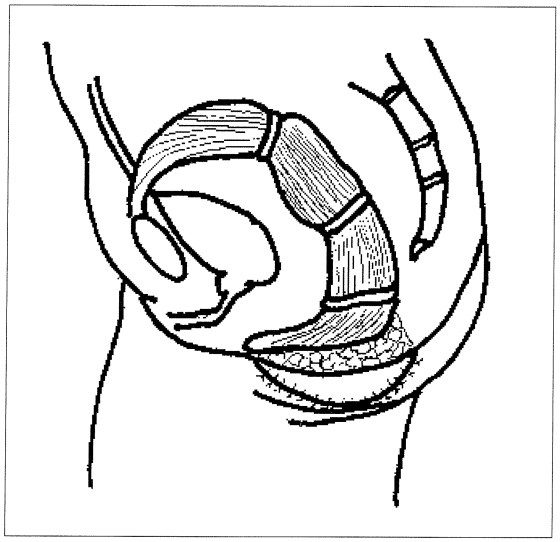

Fig 1

DISCUSSION

Advancements in surgical technique has allowed preservation of the anus in the majority of patients with rectal cancers. Abdominal perineal resection however is indicated when the tumour is very low and does not allow at least a 2 cm margin of clearance or if the sphincters are involved, thus making preservation impossible.

The patient had a very low tumour which fortunately was only invading the sphincters posteriorly thus allowing the urethral sphincter to be preserved while at the same time necessitating an abdominal perineal resection. Finger fracture techniques and trial dissection have been strongly discouraged in oncologic surgery. This is because it is almost impossible to tell if an adherent organ was the result of inflammatory reaction or tumour invasion[4].

The difficulty is increased when the patient has been subjected to pre-operative radiotherapy. In the past, when tumour invaded the trigone of the bladder, invariably, an ileal conduit was the reconstructive procedure of choice. Recently, bladder reconstruction has been possible after resection of the trigone and even the prostate.

The use of neoadjuvant chemoradiotherapy has been reported to down stage rectal tumours[5]. The benefits of this modality of treatment is probably most suited for locally advanced diseases. It has been shown to increase the resectability rate in this group of rectal cancers[3,5]. However, most surgeons worry about the morbidity of surgery in patients treated with prior radiotherapy. There is evidence that anastomotic leaks as well as pelvic sepsis rates are increased. In addition, the incidence of perineal wound dehiscence is also increased[6]. The transpelvic pedicled rectus abdominis flap is a versatile flap ideally suited to reconstruct the pelvis and perineum in such situations. The muscle serves both as a spacer to fill up the pelvis and brings in fresh unirradiated tissue to control any brewing sepsis that may be present. In addition, the skin from the flap allows well vascularised skin to be closed to the irradiated perineum without any tension[7,8].

CONCLUSION

Radical surgery is often not indicated in many patients with locally advanced disease mainly because there is vital organ involvement or distant disease. However, in very selected cases, there is a definite role for neoadjuvant therapy and enbloc resection of the tumour followed by reconstruction of the perineum.

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