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Reconstruction of the irradiated perineum following extended abdomino-perineal excision for cancer: An algorithmic approach☆

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Summary Our unit has implemented an algorithm for irradiated perineal reconstruction incorporating current evidence and a new technique in line with the advent of laparoscopic tumour excision. Our approach attempts to maintain the benefits patients derive from minimally invasive oncological surgery.

Four consecutive patients had uterine retroversion to obturate pelvic deadspace and reconstruct the posterior vaginal wall. Age range was 41—84 years and mean follow-up of 21 months with mean in-patient stay of 7 days. All patients had neoadjuvant radiotherapy or chemoradiation for low rectal/anorectal adenocarcinoma. All patients had laparoscopic Extended APER and contiguous posterior vaginal wall excision and reconstruction with uterine retroversion and z-plasty skin closure. One patient required ultrasound aspiration of a pre-sacral seroma at two months. No patients returned to theatre for major complications. We highlight one minor and no major complications associated with an algorithmic approach incorporating our method of uterine retroversion and z-plasty parallel to traditional flap reconstruction methods.

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Introduction

Closure of the perineal wound following abdomino-perineal excision of rectum (APER) continues to challenge oncological and reconstructive surgeons. Traditional direct closure is consistently associated with significant morbidity and although, not objectively studied to date, incurs significant costs to healthcare.

Delayed wound healing, dehiscence and/or infection is still encountered in upto 60% of some case series of direct perineal closure.[1] It is generally accepted that poor drainage of blood, lymph and bacteria from the wound cavity are key factors that contribute to breakdown. Current oncological treatment has evolved to the Extended APER (eAPER) in an attempt to reduce recurrence rates and prolong survival. This is at the cost of creating a larger pelvic defect likely to exacerbate the high wound complication rates already observed in standard APER direct closure and possibly increase the rate of perineal herniation. Relatively higher rates of infection observed in the perineal wound may also be related to: the close proximity of sexual organs, the difficulty in adequately dressing the area, and early weight bearing that induces micro-ischaemia. Recent focus has shifted to reconstructive options to combat longer hospital stays, discomfort and surgical re-intervention associated with direct perineal closure in particular since the introduction of eAPER and increased incidence of neo-adjuvant perineal radiation.[2] Such options ideally provide replacement tissue designed for sensitivity, support for sexual organs and durability for weight bearing.

Methods

Our unit has implemented an algorithm (Figure 1) for perineal wound closure in line with current evidence and a team approach to these complex defects. This incorporates open and laparoscopic assisted tumour excision and the amount of pelvic tissue excised. Our study focuses on one arm of our algorithm; as it details the use of a novel approach to these defects.

Donor site morbidity in this group of complex patients could affect quality of life during recovery from the primary curative surgery, thus we advocate the use of local tissue where possible. Z-plasty closure of the perineal skin is used rather than harvest of skin paddles with muscle transfer. This reduces potential donor site morbidity and obviates the need for potentially unreliable skin paddles, such as in the gracilis myocutaneous flap or pudendal thigh flap.[3] Z-plasty, whether single or double, provides a more reliable skin flap less affected by the radiotherapy, to suture to the directly irradiated skin. Previous study has shown the proximal colonic resection margin to exhibit signs of radiation induced mucosal injury despite being thought to be

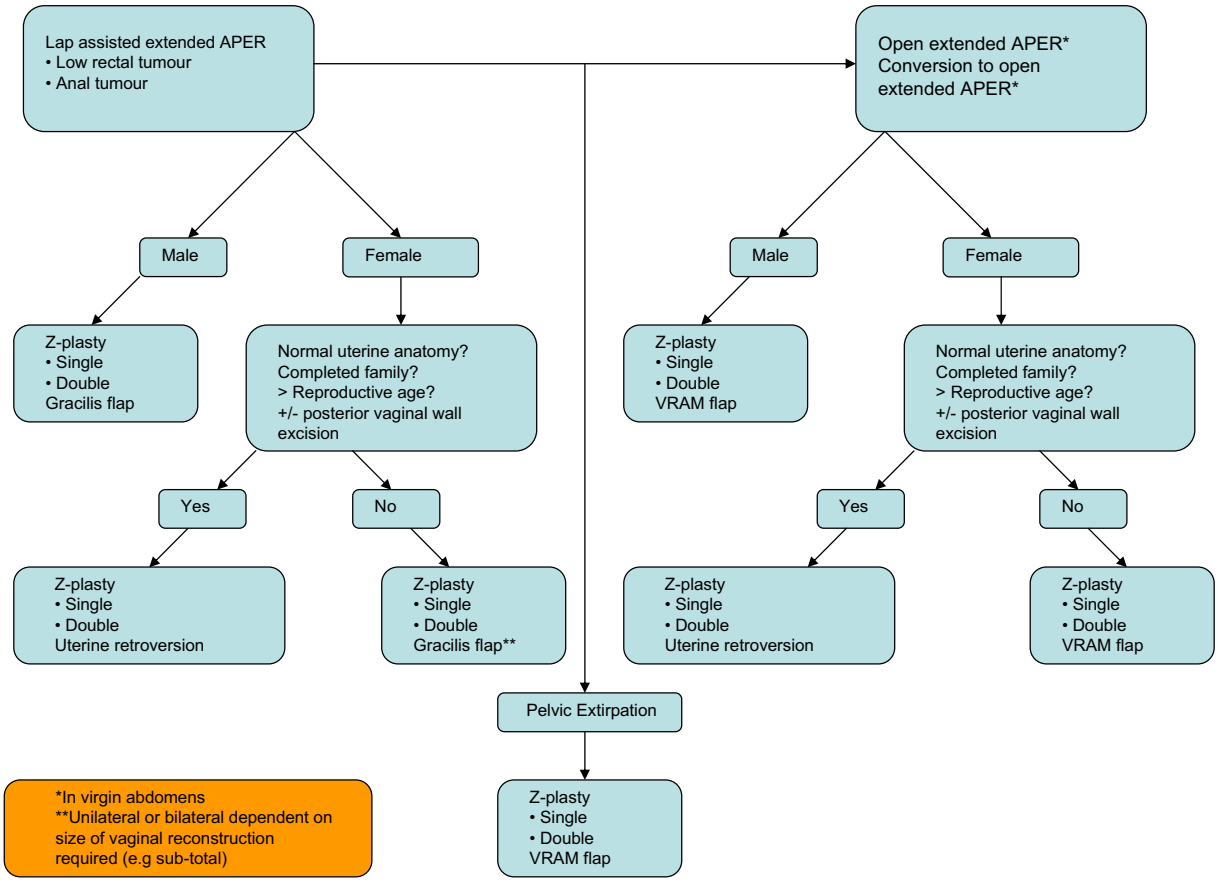

Figure 1 Alogorithm for reconstruction of the irradiated perineum.