Alleviating perineal tightness following abdominoperineal rectal resection

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Background
Perineal wound complications after abdominoperineal rectal resection (APR) are both frequent and clinically relevant for their impact on length of hospitalization, overall costs, patients' quality of life and oncological results. A close follow-up of these patients even when primary healing was complete revealed that most of them still had a sense of perineal tightness and discomfort during daily activities such as walking, sitting, and riding.

Aim of the work
The aim of this work was to study the use of a simple perineal L-shaped flap in alleviating the sense of perineal tightness and discomfort following APR, as well as for improving wound-healing rates.

Patients and methods
The study included 28 patients indicated for APR. After APR was carried out (conventional or extralevator), an L-shaped fasciocutaneous flap was designed on one side of the perineum and was used to close the perineal wound. Wound complications and sense of perineal tightness were recorded.

Results
An overall 75% of perineal wounds following APR healed without complications. The remaining had minor complications. A total of 23 patients (82.1%) stated that they had no sense of perineal tightness.

Conclusion
The simple L-shaped fasciocutaneous flap not only improves perineal wound healing but also improves the patients' quality of life by alleviating the sense of tightness, especially during sitting.

Keywords:
fasciocutaneous, flap, neoadjuvant, perineal wound

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Introduction

Perineal wound complications after abdominoperineal rectal resection (APR) are both frequent and clinically relevant for their impact on length of hospitalization, overall costs, patient quality of life, and oncological results. With the increasing use of preoperative radiotherapy and the gradual shift of extralevator approach, the perineal wound morbidity rates are increasing [1,2].

Primary closure is frequently under tension and is a significant factor in wound breakdown [3]. The adverse effects of radiotherapy on wound healing are directly related to the progressive occlusive vasculitis and the consequent fibrosis of the perineal skin [4].

Thus, the radiation-induced fibrosis is likely to limit the ability to close the perineum due to loss of normal tissue elasticity, especially if the closure is under tension. Bullard *et al.* [1] found that preoperative radiotherapy increases the wound complication rate from 23% to 47%; similar results were reported by Artioukh *et al.* [5].

A close follow-up of these patients even when primary healing was complete revealed that most of them still had a sense of tightness and discomfort in the perineum when performing daily activities such as walking, sitting, and riding. Therefore, we present this work to improve both perineal wound healing rates and the sense of perineal tightness after complete healing.

Aim of the work

The aim of this work was to study the use of a simple perineal L-shaped flap in improving wound healing rates, as well as for alleviating the sense of perineal tightness and discomfort following APR.

Patients and methods

This study was carried out between December 2010 and December 2014 in the Department of Surgery, Menoufia University Hospital, Shibin Alkom, Egypt. All patients were indicated for APR following

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neoadjuvant therapy. We excluded from this study any patient suffering from severe systemic disease affecting wound healing (e.g. collagen disease). The study was approved by the ethical committee of the hospital. Each patient signed informed consent. This was a prospective study.

Surgical technique

After APR was carried out (conventional or extralevator), an L-shaped fasciocutaneous flap was designed on one side of the perineum and was used to close the perineal wound (Fig. 1). Full mobilization of the flap incorporating the deep fascia was carried out, and the flap was transposed medially to cover the defect without tension over a suction drain (Figs. 2–4). The subcutaneous fascioadipose tissue was approximated using interrupted 0-vicyl sutures. The skin was closed using interrupted 2/0 poly propylene sutures.

Postoperative follow-up

Patients were asked to avoid sitting for 2 weeks. Drains were removed once the daily output was less than 50 ml/day. First dressing was applied on the third postoperative day with the objectives of verifying the viability of the flap, local hygiene, dehiscence, and seromas. Sutures were removed in 2 weeks. Patients were followed up for 3 months, by the end of which each patient was asked to state whether or not there was a sense of perineal tightness (Fig. 5).

Results

The study included 28 patients, 16 male (57.1%) and 12 female (42.9%). Their ages ranged between 26 and 67 years. Table 1 represents the wound complications. Table 2 represents the sense of tightness in the perineum.

Figure 1

The defect.

Figure 2

Design of the flap.

Figure 3

Mobilization.

Figure 4

Flap completed.

Figure 5

After healing.

Table 1 Wound complications

Type of complication	*N* (%)
No complication	21 (75)
Partial flap necrosis	1 (3.6)
Wound infection	2 (7.1)
Wound dehiscence	1 (3.6)
Seroma	3 (10.7)

Table 2 Sense of tightness and/or discomfort after 3-month follow-up

Degree of tightness	*N* (%)
None	23 (82.1)
Mild	4 (14.3)
Moderate	1 (3.6)
Severe	0 (0)

Discussion

Impaired perineal wound healing is a significant clinical problem being associated with increased hospital stay, reoperation and intensive wound care for several weeks. The increasing use of neoadjuvant radiotherapy significantly increases perineal wound healing problems. It has been reported that tissue transfer of well-vascularized nonirradiated tissue to the postirradiation pelvic defect results in improved perineal wound healing [6]; even with these techniques, wound complications are reported to range from 0–30% [7].

Performing muscle and myocutaneous flaps to transfer nonirradiated tissues to the perineum usually requires the expertise of a plastic surgeon, increases the operative time by about 2 h and has donor site morbidity [8,9].

Our study represents a simple procedure that can be performed in short time, needs no special expertise and involves no major tissue transfer. This simple L-shaped fasciocutaneous flap lead to sound wound healing in 75% of cases, with minor complications in 25% of cases. These figures are better compared with that reported in other studies [1–3].

Patients' quality of life may be impaired due to tightness and discomfort felt in the perineum, which may interfere with some simple daily activities such as sitting, walking, and riding. The natural design of the perineum allows both buttocks to spread apart during sitting, making use of the cleft between buttocks. This cleft is excised during APR, depriving the perineum from its ability to widen during sitting.

Another value of this technique is the marked improvement in the sense of tightness and discomfort often felt in the perineum by patients after APR. In our study, more than 82% of patients were free of this consequence. This allowed the patients to sit and walk freely and to enjoy bicycling. In one case (3.6%) moderate tightness was reported by the patient and was related to increased transverse diameter of the excised skin following squamous anal carcinoma with perineal extension.

Conclusion

This simple L-shaped fasciocutaneous flap not only improves perineal wound healing but also improves the patients' quality of life by alleviating the sense of tightness, especially during sitting.

Acknowledgements

Conflicts of interest

None declared.

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