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Total pelvic exenteration as a potentially curative surgical procedure in locally advanced gynecologic malignancy

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Abstract

Total pelvic exenteration is an aggressive surgical procedure addressed to invasive pelvic tumors or pelvic recurrences after gynecologic malignancies. The principle is en bloc resection of the pelvic organs or partial resection when either urinary bladder or rectum is respected. It consists in a resectional phase which involves multivisceral resections of the pelvic organs with tumoral involvement and a reconstruction phase which re-creates the continuity of the digestive and urinary tract and, according to the patient's wish a neo-vagina. In pre-irradiated patients, both dissection and reconstruction phases can be hampered and the postoperative complication rates can be significantly higher.

Keywords: *advanced gynecologic malignancies, irradiation, total pelvic exenteration*

Introduction

Since 1948 when Brunschwig reported it for the first time, pelvic exenteration remained the gold standard for locally advanced gynecologic malignancies. In his original series, Brunschwig performed this aggressive surgical procedure in advanced pelvic tumors associated with pain or fistulas, with palliative intent[(1)]. This type of intervention still represents the archetype of ultraradical pelvic resection indicated both in primary invasive pelvic tumors and in pelvic recurrences; its' principal aim is to realize a total excision of the lesion with microscopically tumor-free margins[(2-6)]. In primary invasive tumors the tumoral extent appears after destroying the natural borders of the anatomic segments with different embryologic origins (gynecologic tract, urinary tract and digestive tract). In pelvic recurrences after gynecologic malignancies these borders are already altered by the former surgical procedures. That is how we can explain why a small recurrence can invade in short time after its appearance a larger number of structures[(1-6)]. For example it is very often seen that the recurrences having their origin on the vaginal stump invade in short time both the bladder and the rectum, which automatically leads the surgeon to a total pelvectomy. The development of new surgical techniques and the improvement of postoperative management have effected 5-year survival rates after exenteration from 20% to up to 73%[(7-12)]. Several prognostic factors such as tumor size, lymphovascular invasion, the presence of side wall involvement and positive resection margins are reported to be the most important in estimating the overall survival[(7,11,13,14,15)]. Due to advances in surgical technique and postoperative management the postoperative mortality rate decreased significantly and postoperative morbidity, also significant, came to be better handeled, which led to reconsideration of the method and increasing number of published papers. More than that indications were extended; initially invasion of the pelvic wall was considered a criterium of non-resectability, nowadays however only the tumors invading the sciatic foramen or the tissues above the obturatory nerve aren't suitable for surgery[(2,3,16)]. For the rest of the situations laterally extended resections can be safely performed with good oncologic outcome. The surgical indications for resection have been permanently changing mainly due to the development of more aggressive surgical techniques[(3,4,16-18)].

At the end of the resection phase, the surgical procedure continues with the reconstructive procedure. The techniques of reconstruction improved over the last decades and include continent urinary diversions, neobladder, coloanal anastomosis where the situation allows it and, according to the patient's wish, a neovagina[(13,14,19)]. If the general status of the patient is poor, or the tissues are modified by the previous radiation therapy, the healing can be difficult, so an external cutaneous urinary and digestive conduit will be performed. This alternative is safer because it does not imply an anastomosis in a pre-irradiated ischemic pelvis but it leads to the formation of a large empty pelvic space and large defects in the pelvic floor predispozing at visceral herniation. This is called 'the empty pelvis syndrome' and refers to complications as small bowel obstruction, fistula formation, visceral herniation through the pelvic wall defect, abscess, haematoma or which can appear in the cavity resulting after exenteration. In patients with total supralevator exenteration who do not have the urethra removed, an ileal or ileocolic neobladder can be created. If a colo-anal anastomosis is associated, it can increase the complication rate because any digestive leakage might increase the risk of yrinary anastomosis leakage[(20)]. Some authors recommend

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Figure 1. **Advanced cervical cancer invading the left ureter, the bladder and the rectum**

Figure 2. **Dissecting the ureters from the tumoral mass in order to obtain an appropriate segment for the urinary diversion**

Figure 3. **Complete mobilization of the tumoral mass**

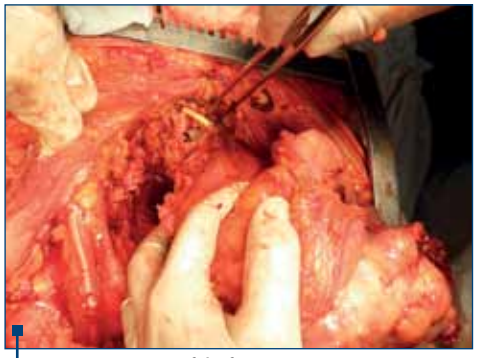

Figure 4. **Resection of the first cm of the urethra**

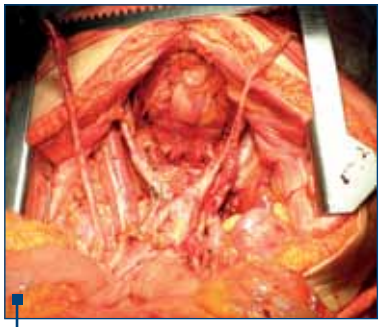

Figure 5. **The final aspect after total exenteration and lymph node dissection. Complete dissection of the two ureters**

Figure 6. **Lymph node dissection of the obturatory fosa**

that the digestive continuity should be re-established before the urinary reconstruction and a temporary loop ileostomy should be considered[21,22].

Conclusions

Total pelvic exenteration represents a treatment option for locally advanced cervical cancer which provides good long term results. Association of radiotherapy preoperatively offers a better control of the oncologic disease but also can predispose to further complications in postoperatively course. This is the reason why the interval between radiotherapy and surgical intervention and the most appropriate technique of reconstruction should be very well weighed in order to obtain the best results. ■

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