

Use of bakri balloon catheter and pedicled omental flap in combination for pelvic reconstruction after total pelvic exenteration

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Abstract

Our case was a middle-aged woman with advanced cervical cancer that underwent pelvic exenteration (PE) and then pelvic reconstruction (PR) with omental flap and bakri balloon placement.

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Keywords

Advanced Cervical Cancer, Pelvic Exenteration, Pelvic Reconstruction, Omental Flap, Bakri Balloon

1 | Introduction

Cervical cancer is one of the most common cause of cancer-related death among women. [1] The only possible curative procedure for patients who suffered from advanced pelvic malignancies is pelvic exenteration. It is a highly invasive operation characterized by the evacuation of the pelvic organs. [2] After PE it is necessary to fill dead space that is called pelvic reconstruction. [3]

In our case, we tried to pelvic reconstruct with omental flap and bakri balloon despite different applications. This article shows the effectiveness of the use of the large-volume bakri balloon as a supporter for omental pedicle flap.

2 | Case report

A 51-year-old female, with a history of advanced cervical cancer who was undergone total pelvic exenteration because of cancer recurrence.

Her cervical cancer was diagnosed as a 2B stage 1 year earlier for the first time. In the beginning, she underwent neoadjuvant chemoradiotherapy. After radiotherapy, her right kidney and right ureter were involved as a hydroureteronephrosis, and then right nephrostomy was placed in it.

In the middle of her last chemotherapy, abdominopelvic CT scan showed a mass of 40*74*132 mm originated from the cervix and invaded the vagina, rectum, ureter, bladder, pelvic wall, and piriformis muscle. So metastasis to her pelvic wall and other pelvic organs was diagnosed and candidate to total pelvic exenteration.

Total pelvic exenteration includes total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH-BSO), Trachelectomy, proximal vaginectomy, proctectomy, cystectomy, right proximal, and distal ureterectomy, left distal ureterectomy, and urhethrectomy were done. Left permanent colostomy after resection of the rectum and an ileal pouch as bladder was set. Then the pelvic floor was closed with peritoneum and omental pedicle flap to prevent visceral prolapse. Eventually, a bakri balloon was settled through the anus and was passed inflation port through the pelvic cavity then the balloon was inflated gradually with sterile normal saline solution up to the minimal volume (maximum capacity 500mL) that effectively fill the cavity. Pathology showed basaloid squamous cell carcinoma/poorly differentiated, Right pelvic wall mass (8*6*4 cm) involved by tumor and present lymphovascular invasion. IHC staining showed positive reactivity for P63 and showed negative reactivity for chromogranin and synaptophysin.

This report demonstrates the successful application of the large-volume Bakri balloon instead of a muscular flap for supporting omental pedicle flap.

3 | Discussion

An estimated 570 000 cases of cervical cancer were diagnosed in 2018, and 311 000 women died from this malignancy. Cervical cancer is the most common cause of cancer-related death among women in 42 countries especially underdeveloped and developing countries although it has been comparatively well controlled in many developed countries [1].

For patients who are affected by advanced primary or recurrent pelvic malignancies, the only procedure with the possibility of cure is surgical intervention. A pelvic exenteration (or pelvic evisceration) is an ultra-radical operative procedure characterized by the en bloc resection of the pelvic organs for patients with advanced primary or recurrent pelvic neoplasms. A complete PE is a treatment that removes all organs from a person's pelvic cavity. The distal sigmoid colon, rectum, and anus along with the urinary bladder, urethra, and genital organs are resected. In women, the vagina, cervix, uterus, fallopian tubes, ovaries, and, in some cases, the vulva are also removed (Fig.1) [2].

Whereas PE is an aggressive operative procedure that left a large dead space, it is necessary to fill that pelvic defect. This procedure is called pelvic reconstruction [3].

One of the most common types of PR is a soft-tissue reconstruction of the pelvis with vascularized tissue flaps. The best type of flaps is performed to transfer tissue from a donor site to a recipient site to efface dead space, return function and figure, provide structural support for the pelvic viscera, and guarantee proper wound healing and closure. The vertical rectus abdominis myocutaneous flap (VRAM) and the omental pedicle flap are the most commonly used pedicle flaps in tandem for pelvic reconstruction following these oncologic interventions [4].

We placed an omental pedicle flap used to fill the pelvic dead space and bakri balloon catheter used for closure of perineal and vaginal defects. The Bakri balloon is a silicone balloon designed for the treatment of uterine bleeding in postpartum hemorrhage (Fig.2). In our patient VRAM flap is not a perfect choice because of many reasons such as recent radiation, non-bulking VRAM, past surgery in that area, etc. Instead of this bakri balloon catheter was placed to support the omental pedicle flap and prevent it from visceral pressure and rupture and ischemia. Moreover, it gives time to create a granulation tissue and fill dead space to prevent visceral prolapse. We would like to empty the balloon gradually, but we had to remove it almost 20 days after surgery. because despite its benefits bakri balloon as a foreign body has a high chance to infect and forming a biofilm. On the other hand, because of pelvic manipulation, the probability of fasciitis and clostridium contamination is high, so the infection management was hard.

It recommends studying more about drains containing an antimicrobial coating.

This method has a bright future for pelvic reconstruction without muscular flaps and prevents prolapsing.

Figure 1

Figure 2

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Figure captions

Figure : pelvic exenteration

Figure - bakri balloon



