

Umbilical Necrosis Post Unilateral Pedicled Transverse Rectus Abdominis Myocutaneous Flap

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SUMMARY

We report a case of umbilical necrosis after a unilateral pedicled transverse rectus abdominis myocutaneous flap in a patient post mastectomy. This uncommon complication of breast reconstruction is highlighted.

KEY WORDS:

Umbilical necrosis, TRAM flap, Mastectomy

INTRODUCTION

Breast reconstruction post mastectomy provides an excellent cosmetic option for women who have had to endure the psychological distress of being diagnosed with breast cancer and the subsequent loss of body image associated with it. Reconstructions performed successfully will give these patients renewed hope for the future, especially those in the younger age group. They should, however, be warned of the more uncommon complications associated with the procedure such as umbilical necrosis.

CASE REPORT

A fifty-six year old lady was referred to the Plastic and Reconstruction Unit for left breast reconstruction. Six years previously, she had undergone a left sided mastectomy for a T₂N₀M₀ breast cancer followed by radiotherapy and chemotherapy. Her past surgical history include a vaginal hysterectomy in 1991 which was complicated by a bleeding remnant right tube (oversewn through a pfannensteil incision) and a laparoscopic cholecystectomy in 1998.

Intra-operatively, a right pedicled transverse rectus abdominis myocutaneous (TRAM) flap was raised by mobilisation of skin and subcutaneous fat at the level of the anterior rectus sheath. The right inferior epigastric vessels were ligated, including a perforator to the umbilicus. The rectus muscle was raised with the superior epigastric artery pedicle and delivered to the left breast pocket under no tension, where the mound was sculpted and reconstruction completed. A mesh was stapled to the rectus defect and the umbilicus transposed in the usual manner.

Her immediate post-operative recovery was uncomplicated. On the 4th post-operative day, however, she developed a temperature of 38°C and was noted to have erythema and fluid discharge from the umbilical wound. She continued to have spiking fevers and was commenced on antibiotics. On

the 8th post-operative day, the umbilicus was noted to be pale with poor blood supply. The umbilicus was subsequently excised.

DISCUSSION

Breast reconstruction after a mastectomy is an option available either immediately during the primary surgery or as a delayed procedure. It provides an important psychological benefit for the patient with improvement in self confidence and body image.

There are several reconstructive options available including breast implants, tissue expanders and autologous soft tissue reconstructions. Autologous tissue reconstructions with or without implants are the most complex since they require the transfer of tissue to create the new breast mound. Tissue reconstruction is generally performed using either the latissimus dorsi or rectus abdominis muscle, and may be either a pedicled or free flap. The method and option of reconstruction depends on the patient preference, as well as the surgeon's expertise.

Regardless of the eventual method employed, the most important aspect of breast reconstruction is the final cosmetic result as perceived by the cancer survivor. An excellent outcome will essentially provide renewed hope and improvement of self-esteem. However, breast reconstruction is not without complication. These include flap necrosis (complete or partial), haematoma, seroma, infection and umbilical necrosis. Umbilical necrosis after a TRAM flap is a rare but reported complication especially in bilateral reconstructions¹. The umbilicus receives blood supply from the subdermal plexus and from deep sources including the inferior epigastric arteries, ligamentum teres and the median umbilical ligament. The main blood supply is from the deep inferior epigastric arteries (DIEA) bilaterally and its branches as well as perforators which approach the umbilicus from various depths of the rectus muscle. Vessels running within the ligamentum teres and the median umbilical ligament also contribute to form a rich vascular plexus beneath the umbilicus, with extensive right and left communication¹.

This rich vascular anastomosis usually ensures blood supply is maintained to the umbilicus during mobilisation of unilateral TRAM flaps, where the majority of blood is supplied via the contralateral DIEA as the circumferential incision of the umbilical skin and stalk completely disrupts the subdermal

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plexus. In bilateral TRAM flaps, the risk of umbilical necrosis increases due to disruption of both DIEA, leaving the small vessels from within the ligamentum teres and median ligament as the only supply available.

Even though the incidence of umbilical necrosis in unilateral TRAM flap is low due to the rich vascular plexus, this particular case highlights the fact that previous procedures to the abdomen may alter the vascular supply to the umbilicus. The previous laparoscopic surgery involving insertion of umbilical and epigastric ports and the laparotomy using a pfannenstiel incision may well have compromised the vascular supply of the ligamentum teres and the contralateral DIEA to the umbilicus. The subsequent disruption of the subdermal plexus and ligation of the ipsilateral DIEA for the TRAM flap contributed to the loss of umbilical blood supply and subsequent necrosis.

This case demonstrates the importance of considering the vascular supply to the umbilicus especially after laparoscopic surgery when TRAM flap surgery is contemplated. Conversely the presence of abdominal surgical scars from a previous TRAM flap procedure warns the surgeon to the potential difficulties to be faced during subsequent laparoscopic surgery².

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