

Letters to Editor

Reinforcement of peritoneal repair in donor site post-concurrent laparotomy and rectus abdominis myocutaneous flap breast reconstruction using autologous dermal graft repair from zone 4 of deep inferior epigastric perforator flap: A case series in Asian patients

Sir,

With the rising incidence of breast cancer, the deep inferior epigastric perforator (DIEP) flaps have become a popular autologous tissue transfer option for breast reconstruction post-mastectomy. With the advent of prolene mesh reinforcement of abdominal wall repair techniques, donor site bulging and herniation have largely been eliminated; however, in specific clinical cases where there is weakening of the abdominal wall secondary to previous abdominal surgery or presence of tumours, which require excision, these complications may once again present.^[1,2] Several techniques have been reported to reduce abdominal donor site morbidity, post-DIEP flap harvesting for breast reconstruction, including placement of synthetic or biologic meshes such as acellular dermal matrices.^[3-5]

We illustrate our reconstructive approach in three patients, highlighting a novel use of the dermal graft from zone 4 of the DIEP flap to reinforce abdominal wall repair and to act as an adjunct to the mesh repair. In two of these cases, the primary DIEP surgery was combined with a laparotomy, which is a complex situation. This is because any dehiscence of the peritoneal repair will result in gut spillage into the abdominal subcutaneous pocket. Moreover, the DIEP flap harvesting in itself causes a further skin shortage which may cause peritoneal wound

breakdowns. Dehiscence of the abdominal wound would lead to an open abdomen and herniation of the bowel contents that would be catastrophic.

A 47-year-old woman presented with right-sided breast cancer. A pre-operative computed-tomography (CT) scan demonstrated an incidental urachal cyst. She was noted to have a significant medical history of laparoscopic oophorectomy and a previous caesarean section. In view of the malignant potential of her urachal cyst, it was planned for excision in the same setting as the flap. A DIEP flap was performed and zone 4 was planned to be discarded. Following the excision of the urachal cyst via a midline incision, a peritoneal defect remained which was repaired primarily posteriorly and reinforced with a dermal graft sublay technique, harvested from zone 4 of the flap, anchored with prolene 2/0. The dermal graft was positioned with dermis facing up and fat facing down towards the intraabdominal contents to decrease risk of adhesions. This is an autologous repair technique which can be performed in the same sitting without additional costs, unlike using a foreign mesh material such as Omyra^[6] or double-layered non-adhesive prolene meshes.

A 58-year-old woman presented with right-sided breast cancer and underwent a mastectomy with DIEP flap reconstruction. During the process of raising the flap, inadvertent breach of the peritoneal wall occurred due to adhesions that had formed secondary to a caesarean section which patient had previously undergone. The risk of such a breach is that bowel may herniate laterally and get trapped between prolene mesh if it is used for repair and posterior sheath and cause bowel ischemia. Hence, the peritoneal defect was repaired primarily and overlay technique reinforcement with dermal graft harvested from zone 4 of the flap was performed [Figures 1 and 2].

A 41-year-old woman presented with left breast cancer post-mastectomy for DIEP reconstruction. She had a significant history of hormonal therapy for the breast cancer, a left 5 cm endometriotic cyst and raising cancer antigen 125 trends, hence was also planned for total abdominal hysterectomy and bilateral salpingo-oophorectomy in the same seating. Following the raising of the DIEP flap, a paramedian incision was

performed to access the uterus and ovaries. In view of the large size of the peritoneal defect, a combination reinforcement technique was adopted in this case. The dermal graft harvested from zone 4 of the DIEP flap was laid over the inferior peritoneal incision and secured with prolene 2/0. A prolene mesh was then laid over the peritoneal repair and the rectus sheath was double breasted [Figures 3 and 4].

Therefore, we report three cases of peritoneal defect repair prolene reinforcement with autologous dermal graft [Figures 1-3]. The dermal graft serves to reinforce the primary peritoneal repair, which may be flimsy and prone to tearing and in the event of peritoneal dehiscence allows the gut to be contained by the dermal graft. This prevents direct contact of the gut with the overlying mesh. It allows for subsequent repair and closure of the abdomen with negative pressure dressing therapy as the bowel is contained. It avoids the complications associated with only repairing the

sheath with a mesh risking bowel being abraded by mesh used for fascial repair if it herniates through weakened peritoneal lining or secondary peritoneal defect. The autologous dermal graft onlay technique reduces the risk of post-operative ventral hernias by reinforcing primary peritoneal repair. Other options are acellular dermal matrices and alloplastic prociide. Our autologous dermal graft is a form of matrix, which has many potential uses yet to be explored. It is harvested from tissue that would otherwise be discarded in the DIEP flap and is a safe option, which incurs no additional costs to the patient and provides a heretofore untold benefit to the patient. In our series of three patients, no abdominal wall weakness in the flap donor site was identified following a series of clinical examinations for at least 12 months after autologous dermal graft reinforcement of peritoneal wall defect. A well-formed and thickened fascial layer at the abdominal donor

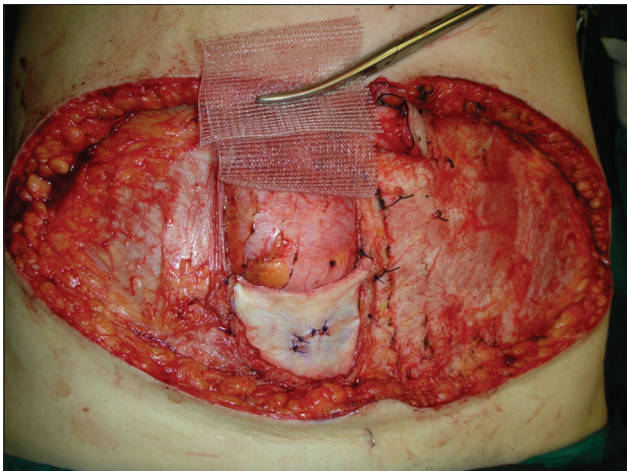


Figure 1: Dermal graft inset with prolene mesh overlying

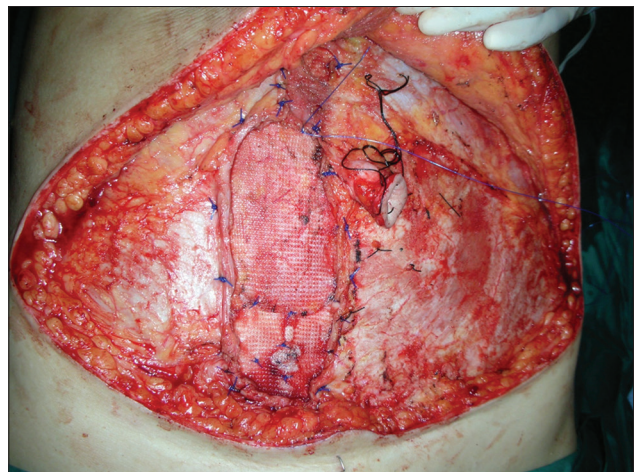


Figure 2: Dermal graft and prolene mesh inset



Figure 3: Double-breasting of the fascia

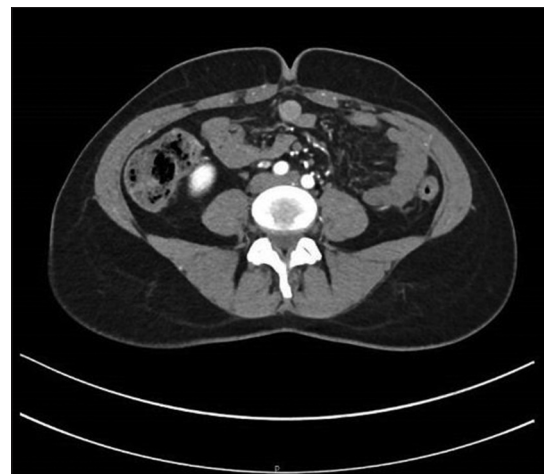


Figure 4: Computed tomography post-repair with dermal graft and prolene mesh inset

fascial repair site was revealed on follow-up by CT scans [Figure 4]. This objective finding, along with our clinical observation, supports the use of dermal graft for repair of the abdominal donor site peritoneal defect following flap harvesting. In conclusion, our two-layered technique of repair prevents abdominal complications and is safe, by preventing direct contact of the mesh with intra-abdominal contents and is cost effective as we are using a segment of the DIEP flap which would otherwise usually be discarded.

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Conflicts of interest

The authors do not have any conflicts of interest.

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