Letter to the Editor

A novel abdominal retractor for reconstructive breast surgery

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Essential properties of a good retractor include simple function, a broad view, and safe application (1). The self-retaining stainless-steel retractors can often hinder a complete view and in deep inferior epigastric artery perforator (DIEP) flap harvest, the retractors must be carefully applied due to their proximity to vascular pedicle (2). In my clinical practice and in our department, we use an abdominal retractor developed at our plastic surgery centre to isolate the DIEP flap vascular pedicle.

This abdominal retractor has a simple design and is made of stainless steel (*Figure 1*). It consists of 68 mm wide transversely curved blade with two blunt tipped angled prongs. The vertical height of curved blade is 72 mm with a 36 mm fenestration and a small beak at its

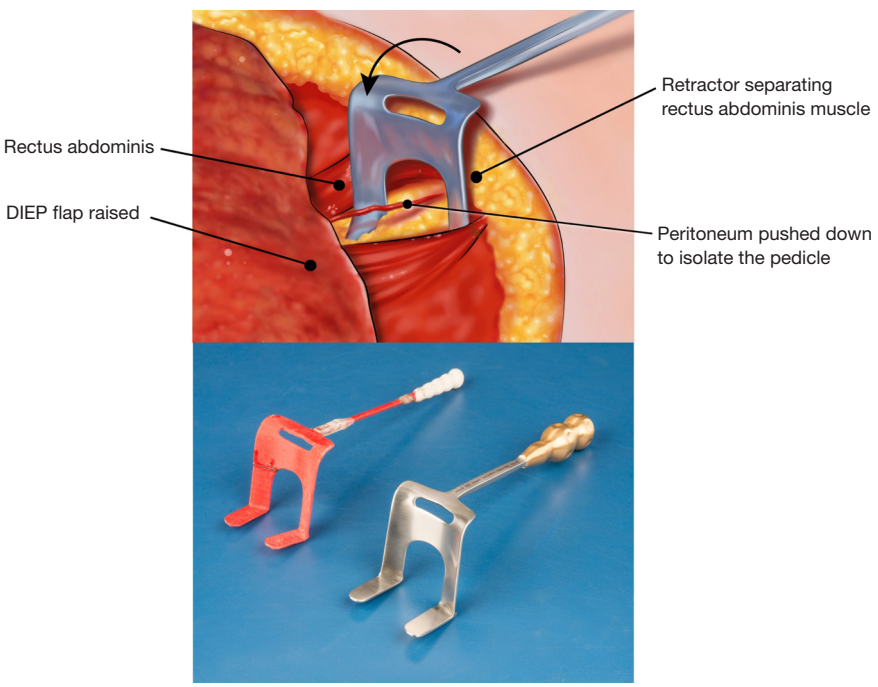

Figure 1 An illustration demonstrating the retractor being used to retract rectus abdominis muscle and peritoneum away to isolate the vascular pedicle. A 3D printer (Wanhao Duplicator 3, USA) was used in designing and developing this retractor. Once the design was finalised, the instrument was fabricated from stainless steel for long-term reliability. DIEP, deep inferior epigastric artery perforator.

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base to prevent slippage. An arch was created in the blade to isolate and allow access for dissection and division of the pedicle. The retractor is used once the vascular pedicle has been dissected just below the arcuate line and free of any muscle attachment (*Figure 1*). The retractor is introduced from the inferior aspect of the wound. The curved blade retracts the rectus abdominis muscle laterally and inferiorly. The blunt tipped atraumatic prongs are used to retract the peritoneum and abdominal contents away from the pedicle. In some cases, the peritoneum can bulge excessively, in such cases a gentle tilt of the prongs towards the peritoneum may be necessary to retract the tissues. Once in place, the arch isolates the pedicle and creates an adequate space for dissection to continue uninterrupted.

This low-cost retractor is easy to use and successfully isolates vascular pedicle in DIEP flap harvest. In our experience, it retracts the abdominal wall muscles and the bulging peritoneum synchronously providing better exposure. Its use, however, can be limited in cases where a shorter vascular pedicle is required and in patients of small stature due to availability of retractor in one size. The latter issue will be resolved with smaller size retractors which are currently being manufactured.

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Ethical Statement: The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolv

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