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Use of polytetrafluoroethylene vascular graft to cover the kinking protector of left ventricular assist device facilitates later pump exchange

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The HeartWare left ventricular assist device (HVAD; HeartWare Inc, Framingham, Mass) is a reliable tool for the treatment of end-stage heart failure. To date, more than 5000 pumps have been implanted in patients worldwide with excellent clinical results, and the numbers are increasing every year. However, some patients require a pump exchange during support, mostly because of thrombosis and less frequently for cable damage.[1] The surgical technique has been described.[1,2] Dissecting the plastic rings of the kinking protector from the epicardium is a major surgical challenge during pump exchange because of severe epicardial adhesions and ingrowth of tissue between the plastic rings. This step is time-consuming and may lead to bleeding or damage to the right ventricle. There is only one way to avoid this risk—by not dissecting the kinking protector from the heart surface. One possibility is to resect only the upper parts of the first 7 to 8 plastic rings, because these upper parts are not attached to the epicardium, and then to remove the graft from the kinking protector. The disadvantage of this approach is that unless a new kinking protector is attached after pump exchange, the outflow graft remains partially unprotected. A more elegant option is to avoid adhesions around the kinking protector altogether by pulling a 20-mm diameter polytetrafluoroethylene (Gore-Tex; WL Gore & Associates, Inc, Newark, Del) graft over the kinking protector before implantation of the pump (Figures 1 and 2). To avoid migration of the polytetrafluoroethylene (Gore-Tex) graft, we attach it to the pump housing or the first plastic ring of the kinking protector using 3-0 Prolene suture. In addition, so that it can be easily identified, the fixation screw is covered with a silicon tube (1 mm diameter, 2 cm long) usually used to cover the branches of a mosquito clamp.

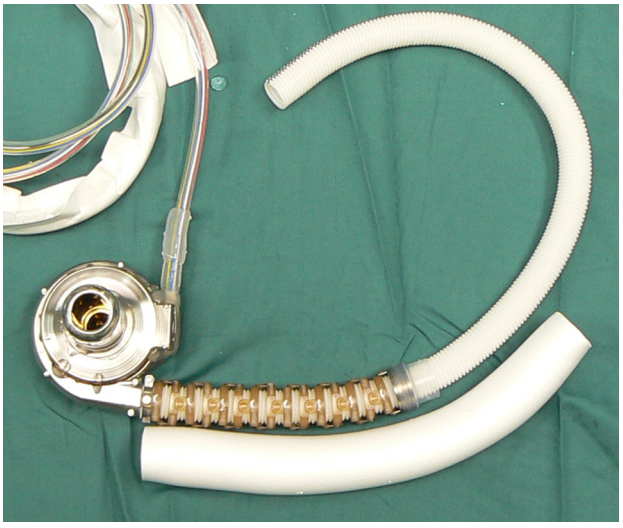

FIGURE 1. Assembled HeartWare HVAD (HeartWare Inc, Framingham, Mass) and the polytetrafluoroethylene (Gore-Tex; WL Gore & Associates, Inc, Newark, Del) graft (diameter 20 mm) before it is pulled over the kinking protector of the HeartWare HVAD.

During pump exchange, the surrounding graft should be opened and the kinking protector within the outflow graft

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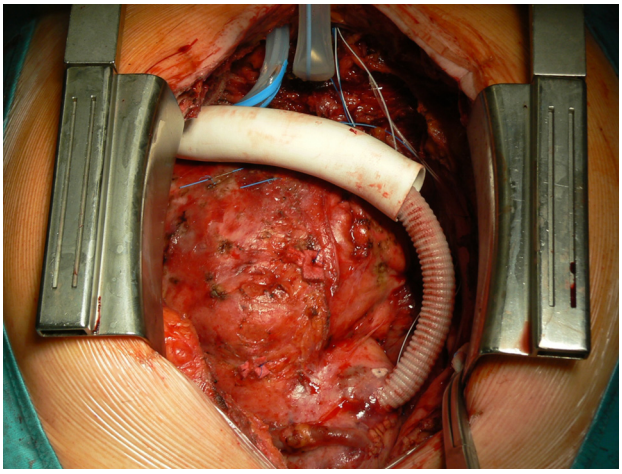

FIGURE 2. Operating field (redo median sternotomy) before closure of the sternum with polytetrafluoroethylene (Gore-Tex) graft pulled over the kinking protector and outflow graft.

removed, disconnected from the old (thrombosed or otherwise damaged) pump, and connected to the new pump. Thereafter, the polytetrafluoroethylene (Gore-Tex) graft should be closed (using suture or clips) to protect against adhesion and to facilitate any unlikely future exchange of the pump. We use the technique described for all HeartWare HVAD implantation approaches, that is, median sternotomy and left lateral or bilateral thoracotomy. To avoid twisting of the outflow graft during aortal anastomosis, the position of the black line on the outflow graft should be kept in mind.

This technique has been routinely used in our center since the last 100 HVAD implantations. No evidence of increased infection has been noted. In 2 cases in which the kinking protector was covered, pump exchange was performed fast and without any complications. During heart transplantation in the described patients, reopening of the chest and separation of the heart from pericardium also were less traumatic.

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Minimally invasive rib resection with preservation of periosteum using 1-port video-assisted thoracoscopic surgery

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Video clip is available online.

Minimally invasive thoracoscopic surgery is not just a trend but has become the standard for many operations. One-port methods have recently been introduced and have proved to be compatible with other thoracoscopic methods. We report the case of a benign rib tumor occurring in the eighth rib of a 13-year-old girl, who underwent rib resection using one-port video-assisted thoracoscopic surgery. A single 2-cm port was placed over her sixth intercostal space just below her mammary crease. The patient was discharged on postoperative day 4 without pain and was happy with the cosmesis.

CLINICAL SUMMARY

A 13-year-old girl presented with symptoms of right chest wall pain of 1 week's duration after having been diagnosed at a local clinic with an osteolytic lesion in her eighth rib. She had no history of trauma but had a pathologic fracture. A rib series revealed an expansile osteolytic lesion in her eighth rib. A computed tomography scan revealed an expansile 1.5-cm mass with a fracture (Figure 1, *A*) and 2

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