Is it the end of the beginning for minimally invasive distal pancreatectomy?

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Patients with pancreatic cancer of the pancreatic body and neck achieve best outcomes with margin negative radical resections. Strasberg and colleagues described the radical antegrade modular pancreatosplenectomy in 2003 improving negative posterior resection margin rates and lymph node yields, and is the gold-standard for body and neck cancers.[1] Minimally invasive surgery has grown exponentially over the last 25 years. Randomised trials by de Rooij and colleagues and Bjornsson and colleagues of minimally invasive distal pancreatectmoy (MIDP) vs open distal pancreatectomy (ODP) demonstrate reduced length of hospital stay and improved functional recovery for MIDP.[2,3] However, the lesions were almost all benign or pre-malignant requiring less radical resection.

The LACC trial for early cervical cancer raised concerns about the outcomes of minimally invasive surgery (MIS) in cancer, with worse overall survival and disease-free survival in the MIS group.[4] This shone the spotlight on the challenges of the extent of cancer radicality achieved with MIS approaches, creating the need for randomised trials to support MIS approaches for cancer.

Abu Hilal and colleagues described the laparoscopic 'no-touch' left pancreatosplenectomy in 2015 as an oncological minimally invasive alternative to the Strasberg ODP.[5] However, concerns remained amongst surgeons to achieve the oncological radicality of ODP.

In this issue of *The Lancet Regional Health - Europe*, Korrel and colleagues report the results of the DIPLOMA Trial, an international randomised trial performed in 35 centres in 12 countries that investigated the oncological safety of MIDP compared to ODP in patients with resectable pancreatic cancer.[6] Two-hundred and fifty-eight patients were randomised (131 MIDP vs 127 ODP) from 2018 to 2021. Both patients and histopathologists were blinded to the surgical approach, with patients unblinded at post-operative day 5, or when they achieved functional recovery. The primary outcome was the rate of radical resection (tumour >1 mm from resection margin, R0) between MIDP and ODP. It was achieved using a modified intention-to-treat analysis demonstrating non-inferiority to ODP, with R0 resection rates of 73% and 69%, (p = 0.039) for MIDP and ODP respectively, and comparable lymph node yield rates (22 vs 23, p = 0.86). The conversion rate for MIDP was 12%. Secondary outcomes showed no difference in functional recovery (5 days), or length of hospital stay (7 days), contrary to previous trials. This likely reflects the increased radicality of surgery required for pancreatic cancer compared to that for benign indications.

This was a well-designed and performed trial. However, data is lacking on the number of resections performed per surgeon/centre beyond the pre-specified requirement of each surgeon needing to perform four distal pancreatectomies per year to be eligible for trial participation.[6] Were cases evenly spread across surgeons and centres, or was there a disproportionate number performed by a small number of surgeons, and was there an impact of centre and surgeon volume on outcomes? Furthermore, pancreatic cancer of squamous subtype is more common in the body and tail (up to 25% cases), associated with more aggressive disease and poorer outcomes than the non-squamous subtype (13.3 vs 23.7 months median survival).[7] It would be of interest to know if there was an even spread of squamous subtype between groups to better assess survival.

Ensuring adequate quality of resection in surgical trials is vital, highlighted by the Dutch Gastric Cancer Trial which demonstrated inadequate removal of lymph node stations in the majority of case (80.5% D1 and 81.6% D2 resections).[8] The DIPLOMA trial introduced robust quality assessment requiring provision of an anonymised video of MIDPs and a photo of the resection margin and pancreatic bed for each case, however the proportion of adequate resections was not reported in the study. This leaves open question of the robustness of the oncological resection in both ODP and MIDP groups.

Twenty-seven percent of MIDP in the trial were performed robotically, however it is not known if the robotic procedures were performed by a small number of master surgeons, or evenly spread throughout the MIDP group. With the increasing use of robotic platforms in HPB surgery offering improved 3D vision, a magnified view of the surgical field vision and endo-wristed movements improving surgical dexterity, the outcomes for robotic MIDP are much anticipated. As learning curves are achieved for MIDP it seems logical that oncological outcomes would improve. What remains unanswered is what is the learning curve for new MIS surgeons for

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such radical resections? For Robotic MIDP Shakir and colleagues suggested 40 cases were required to overcome the learning curve, significantly higher than the number of cases required by DIPLOMA Trial surgeons.[9] There could therefore be additional advantage realised for robotic MIDP for pancreatic cancer when a surgeon's learning curve is fully achieved.

The DIPLOMA trial is an important study that shows for well-trained surgeons MIDP in selected patients can achieve similar results to open surgery. However, with the caveat that in real world practice it is vital that oncological standards are maintained by robust training and ongoing audit, whichever approach is used.

Contributors

Siobhan C. McKay: literature search, data interpretation, writing.
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Declaration of interests

Nil to declare.

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