Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial

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Although, minimally invasive oesophagectomy was first described in the early 1990s, there is a paucity of high quality data on the relative merits of minimally-invasive versus open oesophagectomy (1,2). This is contrast to colorectal surgery where a number of randomised control trials have conclusively demonstrated the efficacy of laparoscopic colorectal resections (3). The reason for this disparity in evidence base lies in the relative rarity of oesophageal cancers combined with the variety of potential surgical approaches for resection oesophageal cancers (e.g., transhiatal, 2 stage, 3 stage and hybrid laparoscopic approaches). The paper by Beire *et al.* (4) is therefore very significant addition to the literature on the topic of minimally invasive oesophagectomies. In this multicenter randomised control trial a total of 115 patients underwent either open oesophagectomy through an Ivor Lewis approach or minimally invasive oesophagectomy (MIO) with laparoscopic mobilisation of stomach, thoracoscopic mobilisation of the oesophagus and a cervical oesophago-gastrostomy. In terms of the primary outcome of the study, namely respiratory complications, MIO was associated with a reduced incidence of pulmonary infections. In addition MIO was associated with reduced blood loss, reduced post-operative pain, reduced incidences of vocal cord paralysis and a shorter in-hospital stay. This was open label study which meant that the preoperative staging of these patients was not standardised- it is interesting to note that routine PET scanning does not appear to be performed. Nonetheless the fact that majority of the patients underwent preoperative chemoradiotherapy [even though enrollment in this study predated the publication of the CROSS group study confirming the efficacy of this neoadjuvant regime (5)] and the impressive R0 resection rate achieved in both the open and minimally invasive groups is a testimony to the high quality of the clinical management of the patients in this study. The authors conclude, in common with previously published non-randomised studies (1,2) that minimally invasive oesophagectomy is associated with significant peri-operative benefits as compared with open oesophagectomy.

It should be noted that the likely perioperative benefits of MIO have in fact been underestimated by this study as the surgeons involved were likely to be on their learning curve. The inclusion criteria for the participating surgeons appears to have the performance of a minimum of only 10 MIOs and this low level of experience may be reflected in relatively high conversion rate of 13%. Moreover, it is likely that the MIO surgical technique will be refined over time. For example, the MIO technique utilised in this study routinely involved a three-stage approach and it is possible over time that this will be refined to a two stage approach - a technique which is technically more demanding but eliminates the need for an additional cervical incision. In addition if the experience of the thoracic surgeons during the development of thoracoscopic surgery is replicated (6), it may be that the MIO patients could be successfully managed with PCAs and paravertebral blocks as opposed to epidurals, thereby eliminating the potential complications associated with this analgesic modality. However, the main issue which this study does not address is that of long-term survival. Advocates of open surgery have long argued that the open approach allows more radical dissection of peri-oesophageal tissue. Interestingly, this argument has been shown to be untrue with regard to laparoscopic rectal surgery- indeed there is some evidence that the reduced systemic inflammatory response associated with laparoscopy may have a positive oncological outcome (7). In this study, the authors noted that the lymph node harvest for the two groups were comparable and the R1 resection rate in the MIO group was in fact the lower than that seen in the open group. The authors therefore conclude that there is no pathological detriment to MIO however they are continuing to follow these

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patients up in order to assess the long term survival. If the authors can indeed demonstrate at least equivalent long-term oncological outcome for MIO and open oesophagectomy, then this paper should provide an impetus for driving forward for the widespread adoption of MIO.

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