

## DISCUSSION

Chest wall resection and reconstruction may be required for tumour, infection, radiation injury and trauma.<sup>1</sup> Notwithstanding the need for effective management of pleural cavity, the actual defect requires restoration of chest wall stability and soft tissue coverage. Maintenance of chest wall mechanics relies on both an airtight seal within the pleural cavity as well as skeletal support.<sup>2</sup> Introduction of muscle and myocutaneous flaps, development of reliable synthetic substances for skeletal support, and availability of newer artificial ventilatory support appliances have allowed the surgeons to be more

aggressive in chest wall resections with tremendous refinement in reconstruction methods. So much so, massive chest wall resections with immediate reconstruction, are safe and have become a routine.

Historically, the major concerns with massive chest wall resections were directed towards the respiratory mechanics than the actual pathology<sup>3</sup> and it still continues to dominate the reconstructive surgeon's concern. The most appropriate reconstructive option depends on the location of the defect (anterior, lateral or posterior), its etiology, and a thorough understanding of the chest wall mechanics<sup>2</sup>. Several large series<sup>1,2,4</sup> reporting experience

on 100-500 chest wall reconstructions testify to the indications, safety of procedures, usefulness of certain flaps and complications, and also qualify the need for skeletal support. Unfortunately, authors of this 'case report' have omitted quoting these articles!

Several factors influence the requirement for skeletal reconstruction. Most patients can tolerate a loss of up to 4 ribs without skeletal reconstruction especially when the defect is covered by a thick flap like the latissimus dorsi.<sup>5</sup> Similarly, loss of lower portion of sternum is less critical.<sup>5</sup> Additional factors that may influence are location of the defect and history of irradiation.<sup>2</sup> Lateral defects require chest wall stabilization more often than the anterior defects and similarly prior radiation offers some stability due to fibrosis.<sup>2</sup> Authors themselves quote the article by Yokote and Osada<sup>6</sup> which concludes that chest wall reconstruction is indicated when; (1) The area of the defect is greater than 100 cm<sup>2</sup>, (2) Three or more ribs are resected in the anterior thoracic aspect, (3) As many as four ribs are resected in lateral chest wall. Authors also state that a decision has to be made intra-operatively whether chest wall reconstruction needs to be carried out or not, so that respiratory function is not compromised. It is indeed baffling that they decided not to reconstruct the chest wall with a defect of > 400cm<sup>2</sup>, involving 4 ribs, situated laterally on the chest wall, and without any history of prior irradiation! Fear of infection in 'mesh' reconstructions with PTFE or polypropylene can not be the sole justification in not reconstructing such a large chest wall defect when entire literature and large series advise differently. Kroll et al<sup>4</sup> reporting on long term follow up of 96 chest wall reconstructions with myocutaneous flaps stated that synthetic mesh reconstructions were not used in a majority of patients (average number of ribs resected 2.9) but at the same time they did not find any evidence of increased infection or other complications which would argue against the use of such synthetic stabilizing materials. But, nothing succeeds like success! Several articles also support the view that the pulmonary function may not be ultimately compromised even in large chest wall resections, like resection of entire sternum without prosthetic reconstruction, although, prosthesis may shorten hospitalization and the ultimate time on ventilator.<sup>7-9</sup> Another important factor to be considered is the

reduction in forced vital capacity following chest wall resection and reconstruction with 'Marlex' mesh. This leads to reduced exercise tolerance, and if the chest wall is not reconstructed there may be further loss of vital capacity<sup>10</sup>. May be through this case report we are being conveyed the message that it is safe enough to resect very large lateral chest wall defects without reconstruction if latissimus dorsi flap is being used. How has one to decide the largest chest wall defect that can be closed without chest wall reconstruction? Authors have suggested to us one way i.e. try it out! On the contrary, I think we need to have clarity in our objectives before making brave attempts at closing such large(er) chest wall defects without chest wall reconstruction because we may inadvertently have a patient who can not be weaned off the ventilator!

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