



3D chest wall reconstruction

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Abstract

Computer modeling and 3D printing has found wide-scale applicability in pre- and intraoperative meticulous planning of surgery. Dr. Harsh Singh from Christchurch Hospital, New Zealand, discusses its current and future role in chest wall reconstruction.

Keywords Computer modeling · 3D printing · Thoracic surgery

Dr. Harsh discusses (Video) the role of 3D printing in thoracic surgery [1], its advantages, and its major draw-back of the time lag between acquisition of the images and the printing. It helps get a virtual image of the organ that one is contemplating to operate and has been used by the facio-maxillary surgeons, by the TEVAR surgeons, and others to plan their operations [2]. It takes roughly three weeks for the 3D-printed chest wall reconstruction module to be fabricated and supplied. It is usually very accurate and needs only minor modifications on the operating table. The worldwide experience is very limited [3, 4] of probably 15 cases only for chest wall reconstruction but technology is fast catching up and the numbers should increase. In the limited experience, there have been no instances reported of any complications, delayed seroma formation, or infection. Future lies probably in developing biodegradable scaffolds of the chest wall which will be seeded with cells and ultimately the patient will be left with no synthetic material but only autologous cell wall components. Dr. Singh sees its main role in anterior chest wall reconstruction because for

the rib cage already plates are available and the cost may be prohibitive. They are essentially used for reconstruction after chest wall tumor resections and he foresees the cost coming down as the volumes increase.

References

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