Evaluation of use of an experimental prototype waterjet dissector (Eschmann) in abattoir supplied pig lungs.

J. Tambiah, J.Tambiah C. Tan D. Chambers T. Treasure. London, UK.

Objectives:

This experimental prototype dissector creates a narrow pressurised water jet combined with suction clearance. It has a differential effect on tissues which facilitates dissection. Previous application of a similar device (Hydrojet) in thoracic surgery has been confined to pneumonectomy in animals. We planned an evaluation on cadaveric pig lungs to explore Waterjet's use in a range of thoracic surgical dissections.

Materials and Methods:

Waterjet was used in conjunction with conventional dissection for the separation of lobar fissures, segmentectomy, dissection of hilar structures and lymphadenectomy in cadaveric pig heart-lungs. We assessed ease of use and damage to tissues.

Results:

Initial division of fascial planes with sharp dissection was still necessary but Waterjet helped define planes. We perceived clear advantages for lymph node dissection despite injury to vessels in 6 of 18 cases. Lobar dissection was technically successful in 7 of 9 cases with a practice effect. Hilar dissection could be achieved but there was vascular injury in 10 out of 30 cases; subjectively, there was no advantage over dissection with scissors. Attempts to find segmental planes always resulted in injury to vessels (N=6).

Conclusions:

Node dissection was easy albeit in a bloodless field. There was a strong impression that in clinical lymphadenectomy the Waterjet dissector, with its combined irrigation and suction, would greatly help safe dissection. It may also have a role in defining tissue planes. From this study we envisage a useful role for the Waterjet dissector in thoracic surgery. Clinical studies are planned to explore this.