Figure 1. Statistical analysis. All statistical analyses were performed on a personal computer with the statistical package JMP version 5.0 for Windows (SAS Institute). The incidence and significance of pain scores was compared with harvesting ICM factors by using the χ^2 test as appropriate. Analysis of variance was used for the analysis comparing 2 groups. Analysis of variance was also used for the intercostal muscle (ICM) flap for drainage. All tests were 2 tailed. **Left,** Six-point scale pain score for 4 hours after lung surgery. No statistically significant difference could be observed between the groups ($P = .47$); however, on the whole, the pain score is lower than for the non-ICM group. **Right,** Volume of chest tube at day 1 after the operation. No statistical difference could be observed between the groups ($P = .62$); however, the median is also lower than for the non-ICM group.

tients who did not (non-ICM group) in the last 2 years in our institution. We compared the pain of patients between the groups using a 6-point scale pain score for 4 hours after lung surgery (Figure 1). There was no statistically significant difference between the groups ($P = .47$).

Because we wondered whether harvesting the ICM might lead to an increase of blood loss from the muscle after the operation, we also examined the blood loss after the operation observed from the chest tube. The drainage volume from the chest tube at day 1 after the operation was 215 mL in median (range, 30-480 mL) in the ICM group and 272 mL (range, 10-530 mL) in the non-ICM group (Figure 1). There was no statistically significant difference between the groups ($P = .62$). We believe that harvesting with cautery causes no increase of bleeding. When harvesting, maintaining a good blood supply is very important in this technique. It was reported that ICM sometimes results in calcification in the flap itself,³ resulting in various complications in the short and long term after the operation. We believe that enough blood supply in the ICM does not lead to calcification of the ICM because use of ICM in our institution never resulted in calcification of the ICM. In addition, there was no complication caused by harvesting the ICM in our series of patients, such as subcutaneous seroma or abscess.

Again, in our series of patients, there was no difference in terms of pain. We suspect that there might be 2 reasons why our results were different from your results. One possibility is that not cutting the rib in the author's procedure of non-ICM surgery might strongly press the nonharvested intercostal nerve and increase the pain, resulting in the difference of pain between the ICM group and the non-ICM group. When we open the chest with standard thoracotomy, we usually cut the rib, and we joint the rib at the end of the operation. We believe that cutting the rib releases the tension of the rib in the operation to some extent and reduces the patients' pain. The other possibility is that the different procedure of the wideness of the chest opening might cause the difference in pain. When opening the chest, we take care to hardly retract the rib and not to damage the intercostal nerve. We would like to hear your opinion.

Tomohiro Maniwa, MD
Yukihito Saito, MD
Hiroyuki Kaneda, MD
Department of Thoracic and
Cardiovascular Surgery
Kansai Medical University Hospital
Fumizonochi 10-15
Moriguchi, Osaka 570-8506
Japan

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Reply to the Editor:

We appreciate the letter from Dr Maniwa and colleagues. The authors have tried to confirm our results in their own study. The authors have retrospectively, I believe, compared the pain scores in patients using a "6-point scale pain score." My understanding from their letter is that they assessed the pain for "4 hours after lung surgery." If I understand their study correctly, and I apologize if I do not, I invite them to perform a prospective randomized study between 2 similar groups and to compare the patients' pain several days, weeks, and even months after the operation by using an objective reproducible scale. As for their explanation as to why they found no difference, I would cite the methodology difference between our 2 studies. Importantly, we strongly disagree that cutting the rib leads to less pain. There is no data for that concept, and our opinion is that, if anything, it might lead to more pain because the intercostal nerve might be injured when the rib is shingled. We used to perform our thoracotomies in this manner but changed our technique in 1997. Finally, the authors also decided to analyze the blood loss difference between the patients who had an intercostal muscle flap harvested compared with that in the group that did not have a flap. In our experience there is almost no blood loss during the harvesting of an intercostal muscle flap. As described in our article, we do it using the Bovie and hug the undersurface of the top rib so as to avoid the neurovascular bundle. The bundle is very close, and it is not uncommon to have small side branches that have to be bovied, but the amount of bleeding is negligible. In this respect our studies have similar findings. We thank Dr Maniwa and his colleagues for their interest in our article and wish them well.

Robert James Cerfolio, MD
 Cardiothoracic Surgery
 University of Alabama at Birmingham
 1900 University Blvd
 THT 712
 Birmingham, AL 35294
 doi:10.1016/j.jtcvs.2005.12.063

Extending video-assisted thoracoscopic surgery for trauma: The uniportal approach

To the Editor:

Burack and colleagues¹ recently demonstrated the versatility of video-assisted thoracoscopic surgery (VATS) in managing complex trauma. Like the authors, we believe that VATS has revolutionized trauma management. In addition to smaller incisions, proponents of VATS now advocate the use of fewer incisions. Did the authors initially evaluate the thoracic cavity using a single port (uniportal approach)? This would have allowed direct visualization of the knife blade, especially during withdrawal, and allowed the lung resection to be undertaken.²

We (GR) have been using uniportal VATS successfully for pathology ranging from bullectomy to biopsies for interstitial lung disease.^{3,4} Recently, we extended its role to trauma. A 19-year-old man was admitted with a single gunshot to the right hemithorax. On admission, the patient was hemodynamically stable, in no respiratory distress, and conscious. Examination revealed a 3-cm entry point 4 cm below the right scapula with no exit site. Chest radiography and computed tomography (CT) revealed a moderate right pneumothorax, with the bullet located in the lower parts of the right hemithorax. A chest drain was inserted through the fourth intercostal space in the anterior axillary line.

The patient was transferred to the operating theatre, where, during single-lung ventilation, the drain was removed, and a 5-mm 0° videothoracoscope was inserted through the same incision. The chest cavity, including the entry point, was surveyed to exclude active bleeding. A minimal amount of blood was seen, which was easily suctioned from the costophrenic recess. The diaphragm was retracted with an endoretractor inserted parallel to the videothoracoscope, revealing the bullet in the deepest part of the costophrenic recess, where it was extracted with an Endoclinch (Tyco/Auto Suture; Figure 1). A 32F drain was then placed through the same incision,

Figure 1. Retrieval of the bullet from the costophrenic recess using the Endoclinch device (Tyco/Auto Suture).

and the patient was transferred to the ward. The drain was removed on the second post-operative day, and the patient was discharged the same evening.

Could the patient have been managed with uniportal surgery, which approaches target lesions in a sagittal plane or from a craniocaudal perspective? The key to preventing interference of instruments is by use of roticulating instruments. These have the unique ability to rotate their stems in all planes and various angles. Perhaps retrospectively the combination of uniportal VATS and high epidural analgesia could have avoided general anesthesia and tracheal intubation in the absence of signs of major pulmonary or vascular involvement? This therapeutic option might represent a potential development of uniportal VATS in the future.

Rajwinder S. Jutley, BMedSci, MRCS, DM
 Graham Cooper, MD, FRCS (C/Th)
 Gaetano Rocco, MD, FRCS(Ed), FECTS
 The Price-Thomas Unit of Thoracic Surgery
 Northern General Hospital
 Herries Road S5 7AU
 Sheffield, United Kingdom

Dr Rocco is currently affiliated with the Division of Thoracic Surgery, National Cancer Institute, Naples, Italy.

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Reply to the Editor:

Thank you for the invitation to respond to the letter written by Drs Jutley, Cooper, and Rocco. The worldwide interest in the application of minimally invasive techniques to patients who have sustained penetrating chest trauma is stimulating. The uniportal technique is a novel and innovative approach to thoracoscopic surgery, with the proposed benefit of a single incision and reduced pain. The reported technique requires small roticulated endoscopic instruments, a single incision in the fifth interspace and the posterior axillary line, and an operation performed in a sagittal plane. Furthermore, the reduction of post-operative pain has been documented in a small retrospective series of 16 patients.¹ However, the interspace is substantially smaller in the posterior rather than anterior thorax, and I suppose that the effect of