

Surgery Illustrated

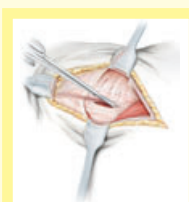
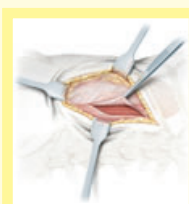
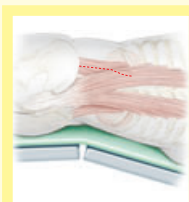
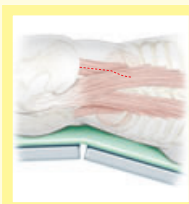
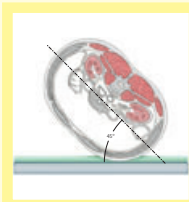
Surgical Atlas

The posterior lumbotomy

VITO PANSADORO

Urology, Vincenzo Pansadoro Foundation, Rome, Italy

ILLUSTRATIONS by STEPHAN SPITZER, www.spitzer-illustration.com

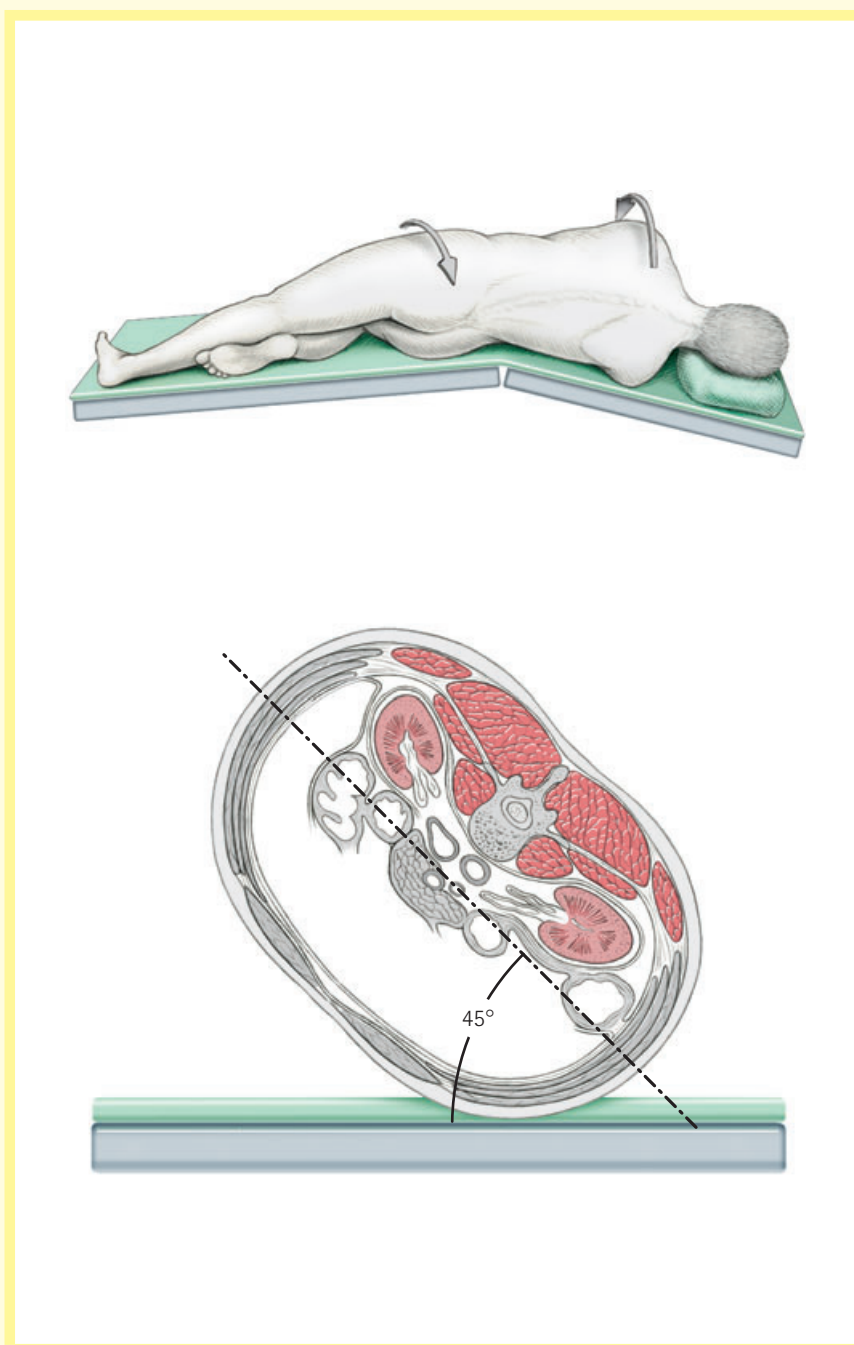


INTRODUCTION

First published by Lurz in 1956 [1], the posterior lumbotomy is the ideal approach to the kidney except for radical surgery. Pyeloplasty and upper ureteric stones can be treated advantageously using this approach. It is relatively easy to perform, demonstrate and teach, and is easily learned. It provides limited exposure but it is good enough for the planned procedure. The 'step by step' technique should be followed.

ANATOMY

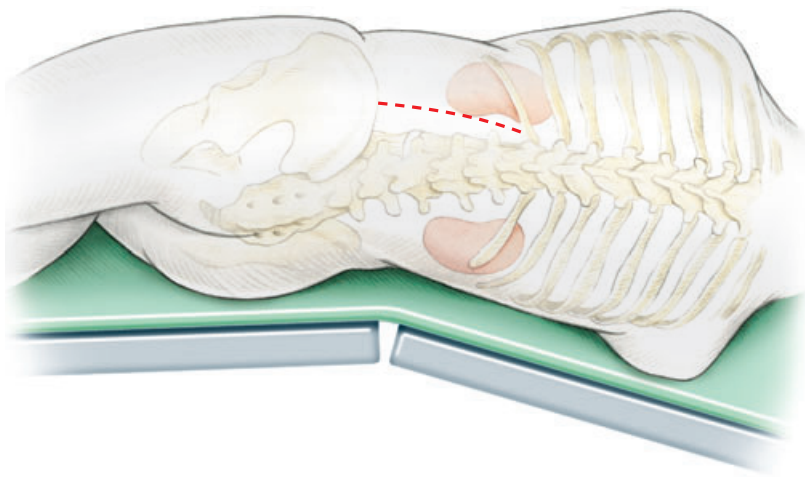
The lumbodorsal region is delineated by three bony structures, i.e. the iliac crest, the 12th rib and the spinal processes. Between these three structures are the sacrospinalis and the quadratus lumborum muscle. Two factors contribute to the originality of the Lurz approach: the incision is exactly on the quadratus lumborum muscle, which is in the centre of the dorsolumbar region, and the operating field is widened by mobilizing the 12th rib after the costovertebral ligament is severed.

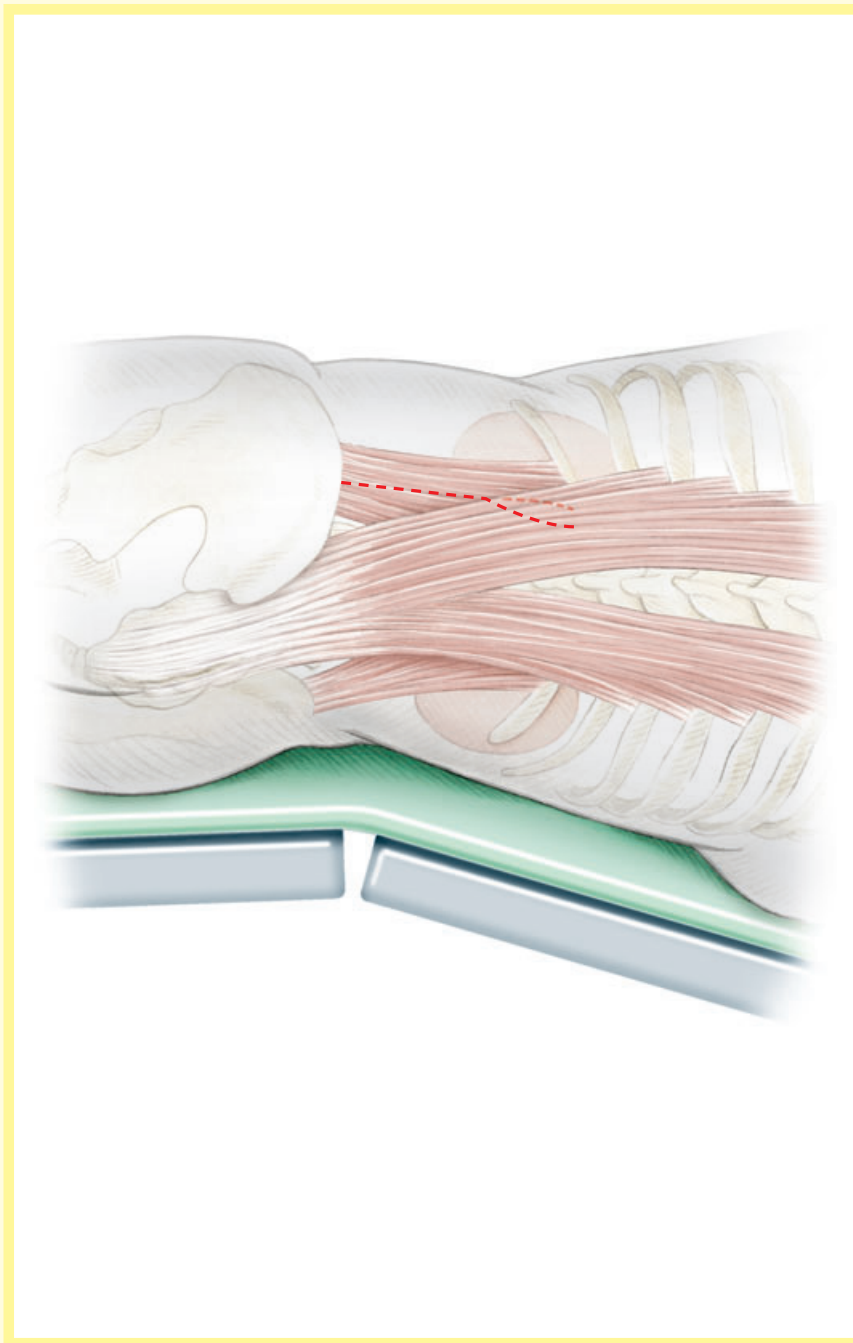
**Figure 1****Patient position**

The position of the patient on the operating table is important and is characterized by three main features. The latero-lateral axis makes a 45° angle with the operating table. It is not necessary for the table to be bent too much because the muscles do not need to be stretched; on the contrary, it is better if they are relaxed to allow easier retraction. The thorax is turned ventrally and the pelvis dorsally to allow a better opening of the dorsolumbar space. The legs and the upper arm are positioned as usual for a flank incision.

Figure 2**Skin incision**

Once the iliac crest, the 12th rib and the spinal processes have been located, the sacrospinalis muscle can be identified easily and the surgeon can then locate the quadratus lumborum. This muscle goes from the medial part of the 12th rib to the middle third of the iliac crest; its upper third is under the sacrospinalis muscle. The skin incision is made over the quadratus lumborum muscle and begins at the costovertebral angle, over the lateral part of the sacrospinalis muscle, and with a slightly oblique course extends down to the iliac crest, 3–5 cm in front of the anterior margin of the sacrospinalis muscle.

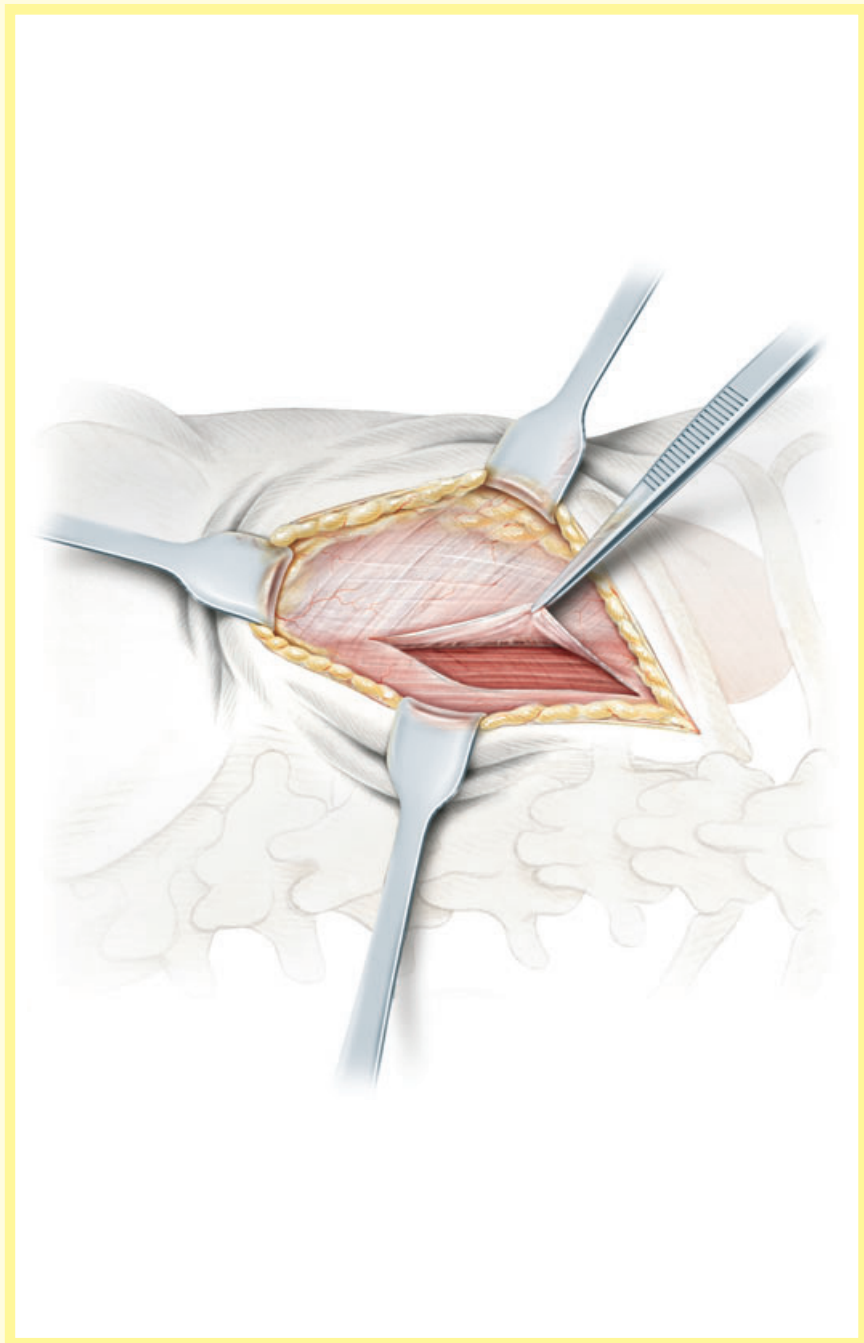


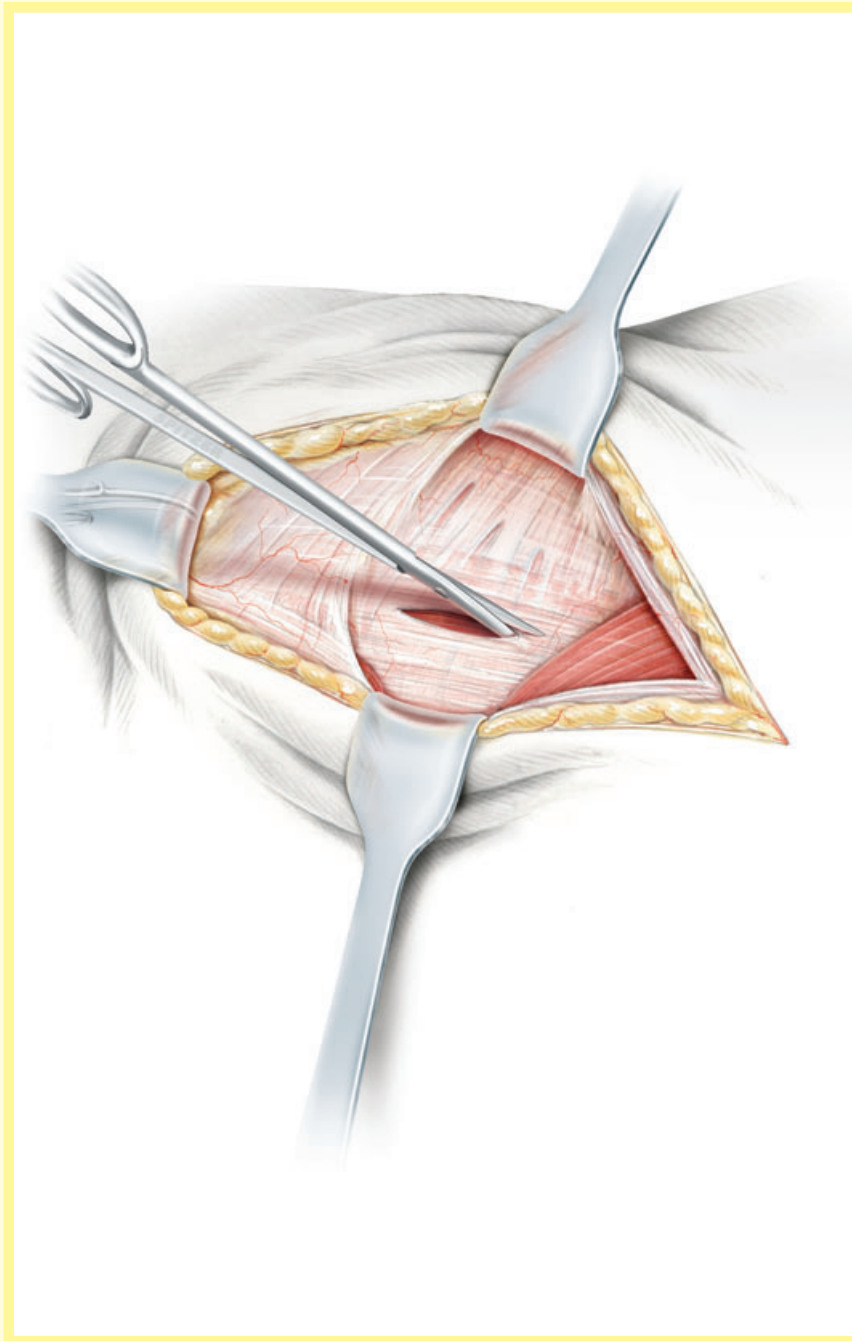
**Figure 3****Approach to the kidney**

The incision of the muscular plane has a 'Y' shape, with the sacrospinalis muscle contained between the arms of the 'Y'. The incision of the muscular layers is a step-by-step procedure that should open the flank safely and exactly, and avoid any injury to the muscle and nerves present in this region. After incising the subcutaneous fat, the last fibres of the latissimus dorsi and the serratus dorsalis caudalis muscles are cut.

Figure 4

As the incision is deepened in its cranial portion, the posterior aspect of the lumbodorsal fascia is opened and the fibres of the sacrospinalis muscle uncovered. These fibres are easily identified by their craniocaudal direction. By cutting through the posterior lumbodorsal fascia around the sacrospinalis muscle, the surgeon completes the incision of the superficial arm of the 'Y'.

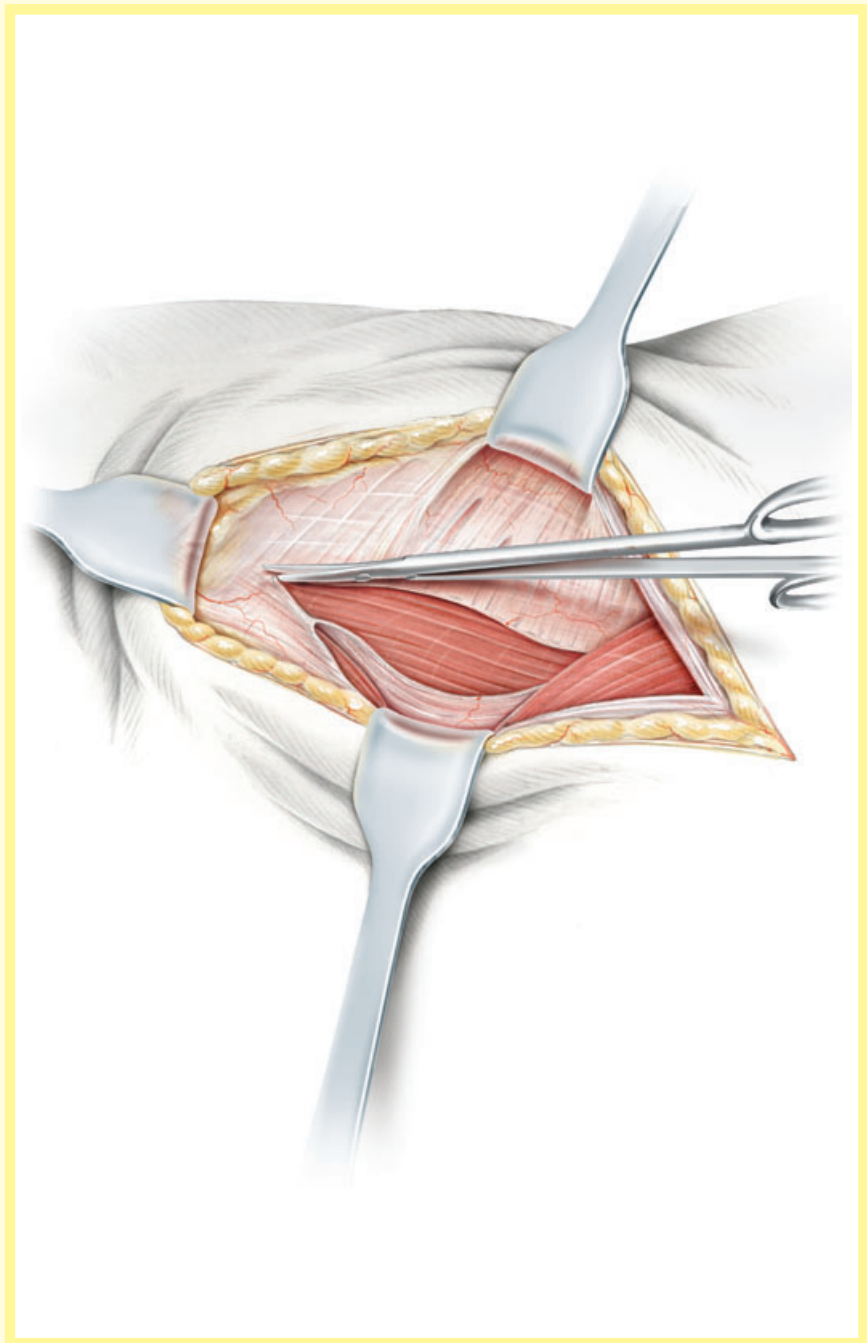


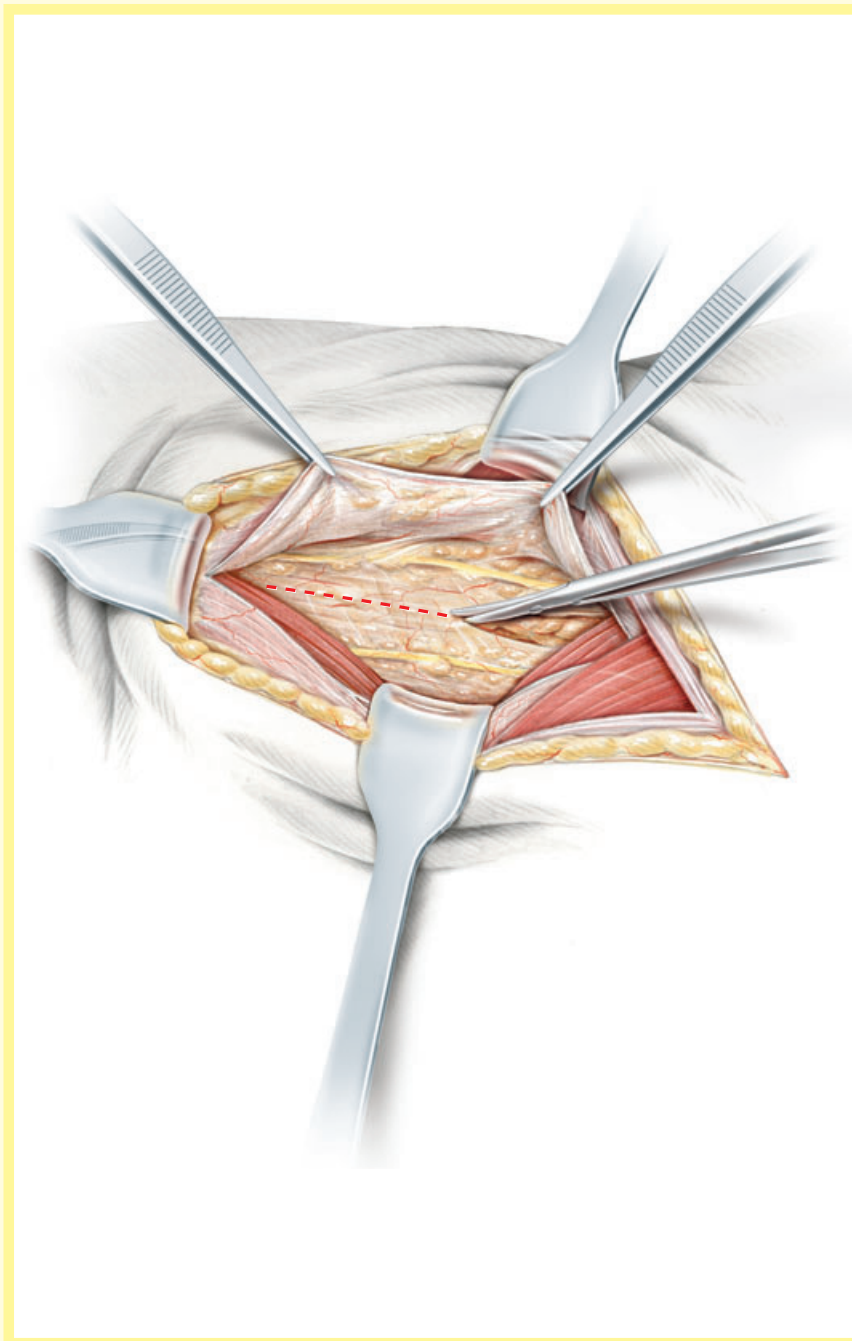
**Figure 5**

The sacrospinalis muscle is then prepared in its lateral and deep aspect, and retracted medially, uncovering the anterior aspect of the lumbar fascia and, under this, the quadratus lumborum muscle. When the fascia between these muscles is incised, the deep arm of the 'Y' is completed and the lumbar fascia is severed caudally over the quadratus lumborum.

Figure 6

Following strictly the direction of the fibres of this muscle, the limb of the 'Y' is completed.

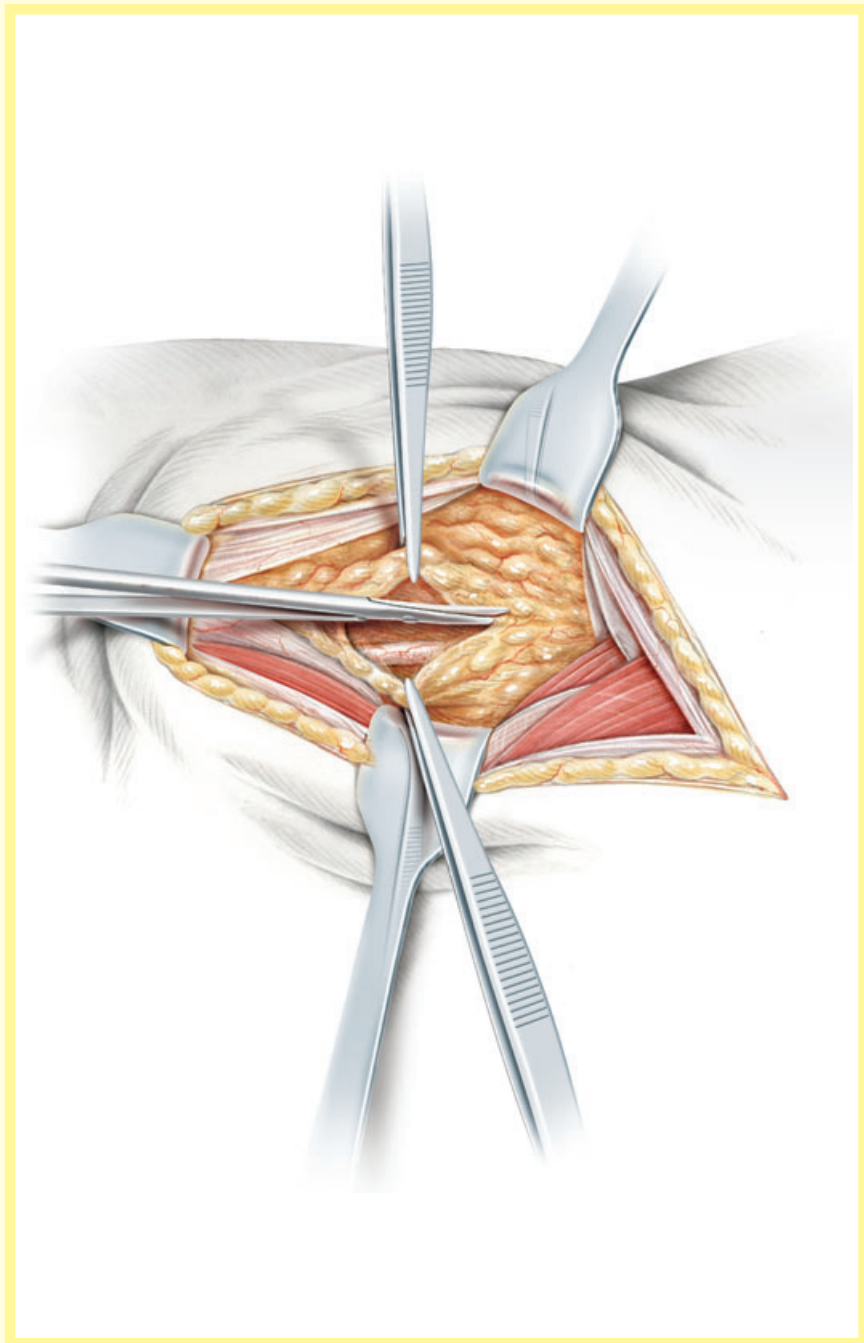


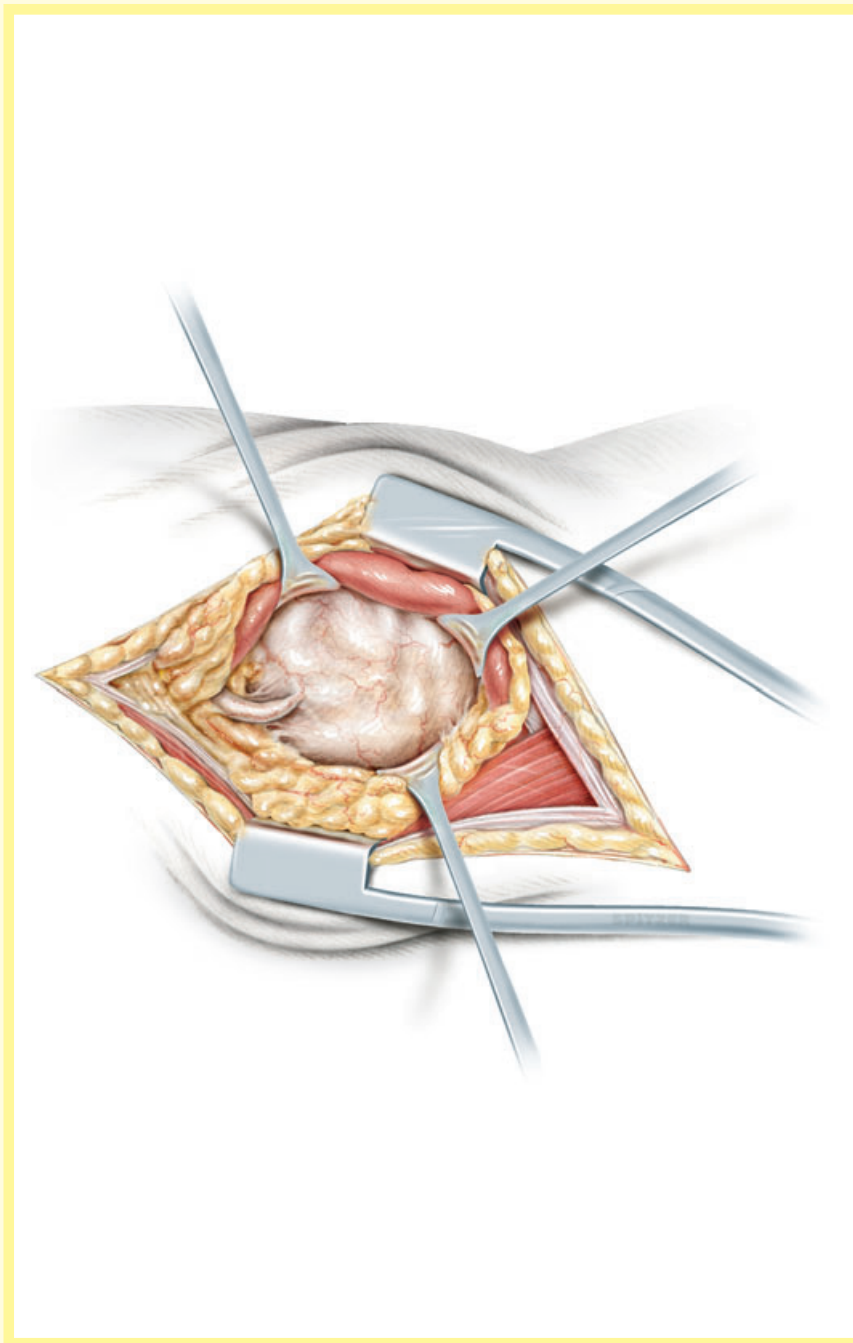
**Figure 7**

Retracting this muscle medially uncovers the posterior aspect of the perirenal (Gerota's) fascia and identifies the iliohypogastric and ilioinguinal nerves. This fascia must be incised between these nerves, which are retracted to each side by two Richardson retractors, reaching the perirenal area.

Figure 8**Ureterolithotomy**

If a ureterolithotomy is required, a deeper retractor should be inserted in the anterior aspect of the wound, and the inferior pole of the kidney lifted and moved cranially. Usually the ureter can be identified by simple inspection of the posterior aspect of the retroperitoneal space. An oblique ureterotomy is preferred, and a 5-0 extramucosal running suture is used for closure. Of course the posterior approach is not indicated for stones lower than the iliac crest.



**Figure 9****Ureteropyeloplasty**

When the need for a ureteropyeloplasty arises, the pelvis lies directly in the centre of the incision, and the operation can proceed with no further dissection. It is helpful to expose the renal sinus using a small 'peanut'. The kidney can then be moved anteriorly and superficially with two Gil-Vernet retractors. Usually after this manoeuvre a self-retaining retractor can be inserted and the pyeloplasty completed easily.

The wound is closed with interrupted #1 absorbable sutures, in one layer, on the lumbodorsal fascia. The quadratus lumborum and sacrospinalis muscle will regain their normal position. Usually patients have an almost painless recovery.

TIPS AND TRICKS

Plain abdominal film are taken before surgery with the patient supine and standing, to evaluate the mobility of the kidney; avoid using the method with fixed kidneys. By incising the costovertebral ligament the 12th rib can be retracted easily, obtaining a wider exposure.

To use the posterior lumbotomy the surgeon must learn how to get the best exposure with this relatively small incision. During the opening phase, two Richardson retractors are used, and after the renal sinus has been prepared, two Gil-Vernet sinus retractors are essential to bring the kidney into the best position. Only then is a self-retaining retractor used to provide the best exposure, with the kidney lifted and positioned in the centre of the incision.

COMPLICATIONS

The care after surgery is as routine for kidney surgery, with caution not to injure the ileo-inguinal and ileo-hypogastric nerve to avoid secondary anaesthesia of the corresponding region. There may be temporary hypotonus of muscles of the anterolateral abdominal wall, caused by stretching of the corresponding nerves.

TROUBLESHOOTING

The patient's position is very important to get the best from the incision. The posterior lumbotomy is a fast, easy, relatively painless and minimally traumatic approach to the kidney and upper ureter, but the working space is more limited than usual. The posterior

lumbotomy should be avoided when the indications are inappropriate.

The muscle-sparing incision, the lack of postoperative pain, the absence of laparocoele and the short hospitalization are the advantages of the posterior lumbotomy. It is the perfect incision for the thin patient, or with a mobile kidney or a posteriorly placed dilated pelvis.

REFERENCE

- 1 Lurz H. Ein muskelschonender Lumbalschnitt zur Freilegung der Niere. *Chirurg* 1956; **27**: 125–8

Correspondence: Vito Pansadoro, Vincenzo Pansadoro Foundation, Via Aurelia 559, Rome, 00165, Italy.

e-mail: vitopansadoro@mclink.it