

# MERITS OF POSTERIOR LUMBOTOMY APPROACH TO THE UPPER URINARY TRACT

Pages with reference to book, From 6 To 8

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## ABSTRACT

Posterior lumbotomy incision is anatomically the most straightforward approach to the kidney and the upper ureter. A brief description of the operative technique is followed by a report of the author's experience with this approach in 38 operations on the upper urinary tract. The access provided was judged to be adequate in 35 (92%) patients although twelve patients (31.5%) required upward extension of the incision for the access to become adequate. Thirty-three patients (87%) were mobile and did not require analgesia by third postoperative day. Average hospital stay was 6 days. Complications occurred in seven patients (21%). There was no hospital mortality. This incision is recommended for relatively simple operations of upper urinary tract like pyelolithotomy and ureterolithotomy (JPMA 43: 6, 1993).

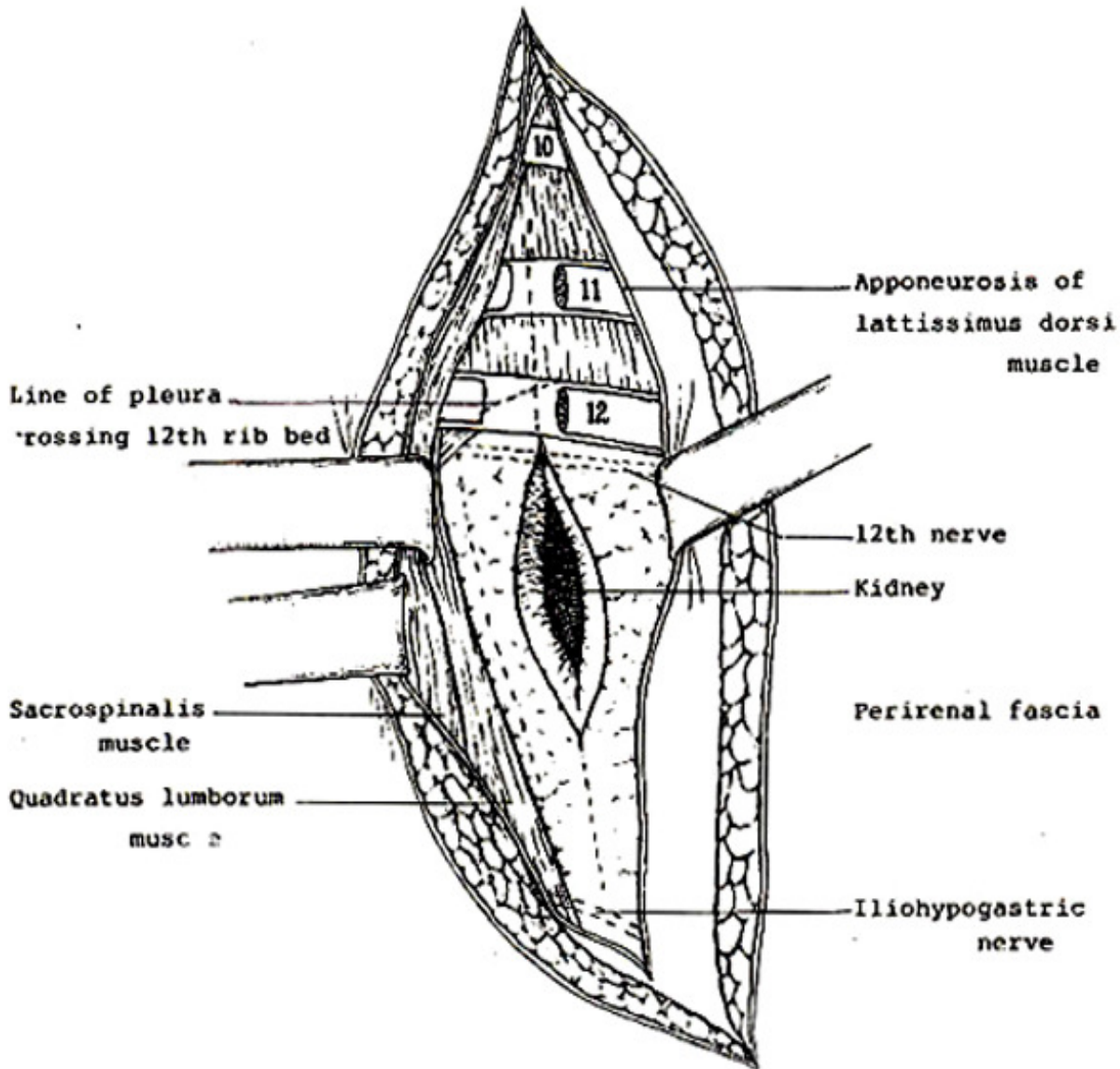
## INTRODUCTION

Renal surgery was started by Gustav Simon in 1870 through a posterior lumbotomy incision. Although this incision provides the quickest and anatomically straight access tract upper urinary tract, flank incision has been the standard with most surgeons for reasons of wider access provided by the later. Posterior lumbotomy was popularized on the European continent by Gil-Vernet and Lurz in the sixties<sup>1</sup>. It is uncommonly used in this country for kidney operations. This report describes the author's experience with 38 patients who had their operations performed through posterior lumbotomy approach. The merits and difficulties of posterior lumbotomy incision are highlighted. Special reference is made for upward extension of this incision to improve access.

## MATERIALS AND METHODS

All patients undergoing upper urinary tract surgery by the author from April 1986 to June 1989 were prospectively studied. These patients were admitted to a general surgery firm with additional urology work in the Services Hospital, Lahore. Data were collected for the type of operation performed and the incision used with any extension if employed, ease or difficulty of access and complications. The time when the patient first became mobile, number of days for analgesic requirement, days of hospital stay and length of follow-up were also noted. Surgical technique of posterior lumbotomy General anaesthesia with endotracheal intubation is used. The patient is placed on operation table on his side with 15° forward tilt with tip of 12th rib over the break. The table is flexed to get the maximum space between 12th rib and iliac crest. The skin incision extends downward and laterally from 12th rib along the lateral border of erector spinae muscle to the iliac crest. The latissimus dorsi aponeurosis in lower part and muscle itself and lowest slip of serratus posterior inferior are divided in the upper part of the incision along the lateral border of erector spinae which is identified by palpation. The fused lamellae of anterior and middle lumbar fascia are incised along the lateral border of quadratus lumborum muscle. Subcostal and iliohypogastric nerves which cross the upper and lower ends of incision deeper to the lumbar fascia need to be preserved. This exposes Gerota's fascia which is opened to reach the kidney pelvis. Upper ureter can be approached by pushing this fascia forward with gauze. If difficulty

is encountered or anticipated, exposure can be greatly enhanced by subperiosteal extrapleural excision of 2.5 cm segment of 12th rib or both 11th or 12th rib (Figure)<sup>2,3</sup>.



**Figure: Upward extension of incision by removal of 2.5 cm portions of 11th and 12th rib.**

The pleural edge is identified at medial end of the bed of 12th rib. It is gently mobilized upwards and the bed is divided in line with lumbar fascia incision. Subcostal nerve is pushed up. A self-retaining chest retractor is then inserted and opened. This upward extension is very similar to medial portion of the osteoplastic flap incision described by Nagamatsu<sup>4</sup>. Incision is closed in layers using continuous nylon No.1 for lumbar fascia and vicryl No.0 for latissimus dorsi muscle and aponeurosis. Closure is started with separate sutures from each end towards the centre of incision. Separate stab incision is used through lateral flap for drainage tube.

## RESULTS

Thirty-eight of 43 consecutive operations by the author during this period, employed posterior lumbotomy approach. Types of operations for these 38 patients are shown in the table.

**TABLE. Types of operations using posterior lumbotomy incisions.**

Type of operation	No. of patients
Pyelolithotomy	22
Nephrolithotomy	4
Pyenephrolithotomy	3
Ureterolithotomy	3
Nephrectomy (for benign disease)	3
Pyeloplasty	2
Nephrostomy	1
Total	38

There were 26 males and 12 females. Their mean age was 32.7 years (range 5-70 years). The remaining five patients had other approaches utilized for kidney operations. These were done one each for renal trauma, hypernephroma, Wilm's tumour, lowly placed pelvic kidney and a patient with recurrent stone. Incision was extended in 12 patients (31.5%) when more access was deemed necessary. Ten of these had portion of 12th rib excised and two had both 11th and 12th rib excision. Access was subjectively judged to be difficult in 3 patients. Two of these patients were operated for recurrent stones following previous flank incisions and the third was grossly obese. Two intraoperative and five postoperative complications were noted. Pleura was injured in one patient. This was repaired without chest tube drainage. Subcostal nerve was injured in another patient. This was not followed by any untoward sequelae. Both of these complications occurred in patients having operations for recurrent stones. Prolonged postoperative urinary drainage was noted in two patients. Both healed spontaneously within 4 weeks. Two patients developed minor wound infections. One patient developed hypotension postoperatively. This was treated by two units of blood. There was no hospital mortality within thirty days of operation in this series of patients. One patient was referred from another hospital for anuria following hysterectomy. Nephrostomy was done initially through lumbotomy incision for the only functional kidney. Her pelvis was explored 7 days following nephrostomy and successful reanastomosis of injured ureter was carried out. Twenty-one patients (55%) were mobile on the first postoperative day and 33 patients (87%) were mobile and did not require analgesia by the end of 3rd postoperative day. Average hospital stay was 6 days (range 3-31 days). Average length of follow-up was 10 months (range 1-24 months). No incisional hernia was noted during follow-up.

## DISCUSSION

A surgical incision can be assessed with respect to comfort and safety it gives to the patient and degree of access it affords to the surgeon. Posterior lumbotomy incision in the present series was accompanied by mobility and absence of need for analgesia by third day in the majority of patients. This is a reflection of the reduced amount of trauma involved in this incision. Although length of hospital stay is another measure of well being of the patient in the postoperative period, it is also influenced by social circumstances. Lack of adequate supportive community services make many patients reluctant to leave hospital before removal of the sutures. This series also illustrates the variety of situations suitable for posterior lumbotomy approach (Table). Although a study comparing posterior lumbotomy incision with standard flank approach would have been more appropriate, results of this study confirm the utility and

safety of lumbotomy incision reported over last two decades<sup>5-12</sup>. Oreland et al<sup>6</sup> reported on 41 pediatric patients having upper urinary tract surgery via this incision. By third day 64% of patients required no analgesia and 93% were tolerating a regular diet. Mean length of hospital stay was 5.6 days. Wisniewski et al<sup>7</sup> reported that their lumbotomy patients spent only 1/2 the time in hospital compared to flank incision. Gardener<sup>8</sup>, Freiha et al<sup>9</sup> and Gittes et al<sup>10</sup> reached similar conclusions as well as asserting that these lumbotomy patients required lesser doses of analgesia and ambulated early compared to flank incisions. Novick<sup>11</sup> reported simultaneous bilateral nephrectomy in pretransplant patients and open renal biopsy using this incision. All his open biopsy patients were able to leave hospital next day. Pansadoro<sup>12</sup> concluded from his series of over 200 patients that "this is the incision of choice for stone surgery and pyeloplasty because it is easy to perform, has minimal operative trauma and postoperative morbidity and results in shorter hospitalization. Recently Carrie et al<sup>13</sup> reported favourably on the use of this incision for adrenal pheochromocytoma. Although this incision is easy to make and quite comfortable for the patient, the main discomfort from surgeon's point of view arises because of "false" belief that this incision does not provide adequate access. Vertical upward extension is readily done to overcome most of the problems if access is found limited at any stage of operation as was done in 12 cases. Ultimately access was found difficult in three patients (8%) only in this series. Two of these had intense adhesions from previous kidney operations via flank incisions. Thus recurrent stones constitute a relative contraindication to this incision. Injury to subcostal nerve and pleura are not peculiar to this incision alone and these can happen during flank incisions for reoperation for stones. Definite contraindications to this incision include tumour, trauma and congenitally malpositioned kidneys. Since majority of surgery on upper urinary tract in this country is done for stone surgery, routine use of this incision is recommended for these less complicated operations in the interest of better patient comfort and safety.

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