

Case report

## Laparoscopic nephron sparing surgery on a patient with extreme body deformation due to cerebral palsy. Is this justified when the tumor biopsy is unavailable?

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### ABSTRACT

Abdominal surgery on patients with significant body malformation is often a challenge for an operative team. Particularly, when patient presents lesions suspected for malignancy but benign disease cannot be excluded. In the reported case the patient suffered from cerebral palsy and had extreme spinal distortion with significant displacement of internal organs. Solid renal mass was detected incidentally, but because of body deformation the biopsy to assess pathological status could not be performed. The decision to perform surgery was made and the patient underwent successful laparoscopic partial nephrectomy. Pathology examination of the specimen revealed renal cell carcinoma grade 2.

**Key words:** cerebral palsy, kidney cancer, laparoscopy, nephron sparing surgery

## CLINICAL IMAGE

In June 2020, a 50-year-old man with infantile cerebral palsy was admitted to our center due to a 52 mm in diameter solid renal mass located in upper pole of the left kidney (fig. 1).

FIGURE 1.

Chest and abdomen computed tomography showed significant kyphoscoliosis and a solid renal mass in upper pole of the left kidney.

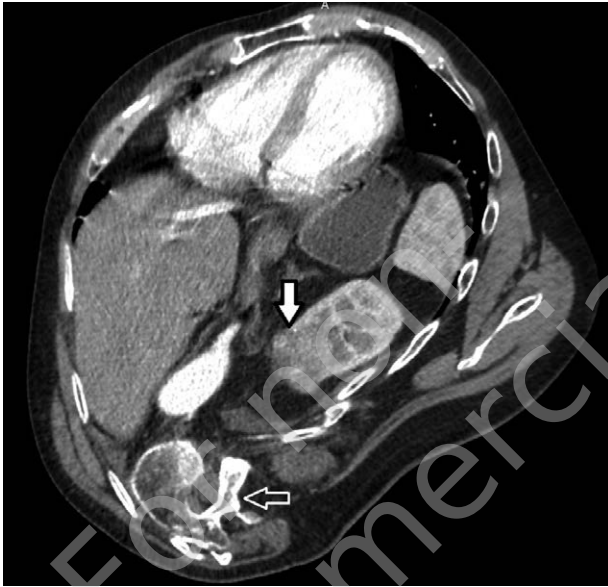
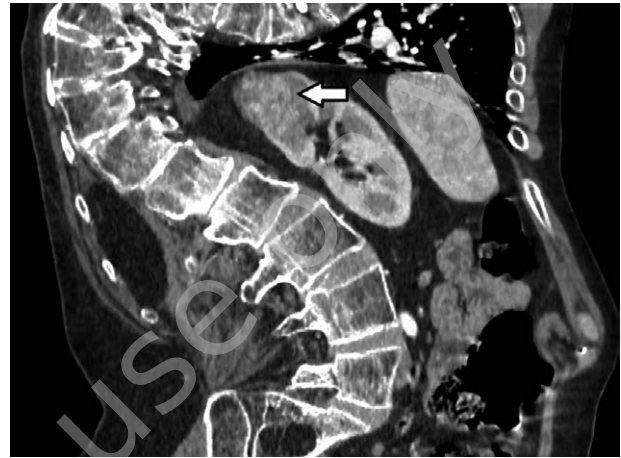


FIGURE 2.

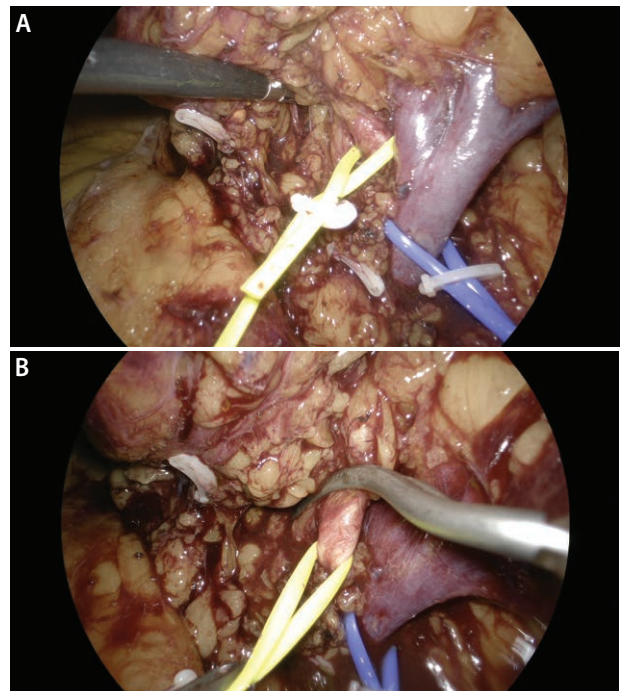
Computed tomography image shows high location of the tumor – at the level of 6–7 ribs and no free space in the left lumbar area.



Due to our center experience in minimally invasive techniques the patient was offered a laparoscopic approach for nephron sparing surgery (NSS). This procedure was also indicated because of the risk of chronic kidney disease, that is often diagnosed in such patients [1]. The patient was placed in supine position with elevated left side. Four trocars were inserted transabdominally. The procedure was performed in a standard manner (fig. 3 A–E).

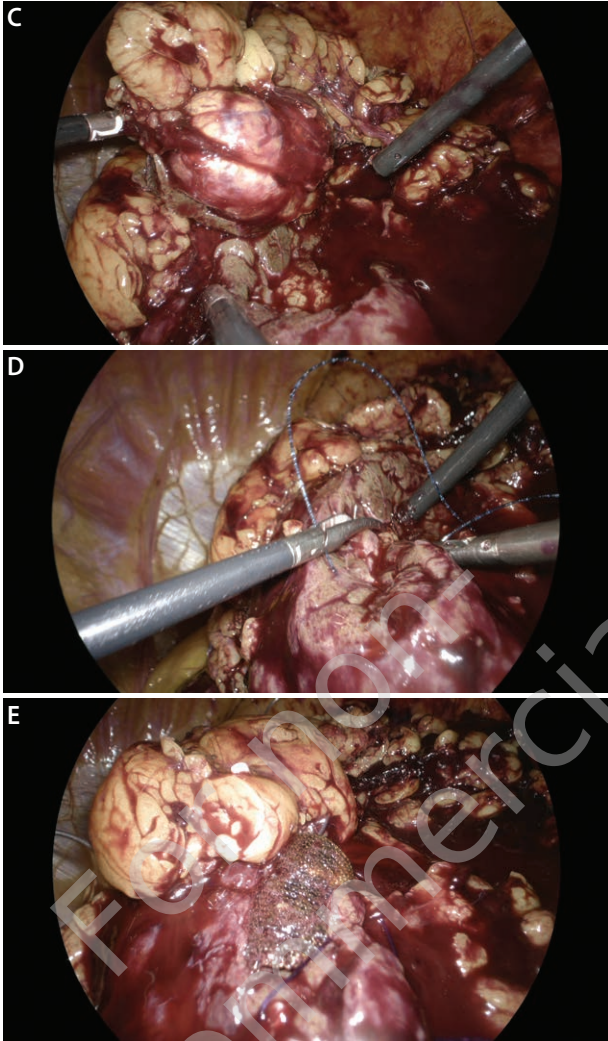
FIGURE 3.

Laparoscopic nephron sparing surgery for renal tumor: dissection of the kidney (A), clamping renal artery (B), resection of the tumor (C), suturing of the renal parenchyma with an absorbable barbed 2/0 V-Loc stitch (D), covering the renal defect with hemostatic agent (E).



Because the biopsy to define the histopathology of the tumor was unavailable and observation could not be accepted, the detailed assessment of the patient was performed. The overall status was good, the circulatory and respiratory systems were efficient and no anatomical contraindications for general anesthesia were found.

Anatomical considerations revealed the 6 points RENAL score tumor located at the 6–7 rib level and no left lumbar space (fig. 2), then standard open procedures (laparotomy or lumbotomy) seemed to be difficult and potentially unsuccessful.



The operation time was 120 minutes with minimal blood loss. The warm ischemia time was 20 minutes. The hospital stay was uneventful. Postoperative pain was moderate (3 points in VAS score). The patient did not require opioids. The patient was discharged on the 3<sup>rd</sup> postoperative day.

The pathological examination showed clear cell renal cell carcinoma (CCRCC) T1b, grade 2 with negative surgical margins.

In a 12-month follow-up the CT scan of the chest and abdomen showed no pathological lesions and laboratory results were all within the normal range.

#### DISCUSSION

Although kidney cancer may produce several biochemical factors suggesting its malignancy [2], the most useful and reliable tool for diagnosis is renal mass biopsy [1, 3]. Around 20–30% of small renal masses are benign and a proper diagnosis can allow to avoid operation [4, 5]. It is particularly important in unfit and morbid patients [6–8].

In our case the severe deformity of the thorax and abdomen made renal biopsy unavailable. Nevertheless, we decided to carry out laparoscopic nephron sparing surgery.

According to the best of our knowledge this is the first case presenting such approach in patient with cerebral palsy.

#### CONCLUSION

Nephron sparing surgery as well as general anesthesia are challenges in patients with severe body malformation. Careful diagnosis and proper surgical technique are crucial for safe and efficient treatment. Laparoscopy is a minimally invasive technique, that may be applied with success.

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### Authors' contributions:

Mirosław Łesiów: 20%; Michał Borowik: 10%; Robert Liss: 10%; Maciej Przdziak: 10%; Roman Łesiów: 10%; Maciej Michalak: 10%; Radosław Grabysa: 10%; Marek Roslan: 20%.

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All authors have read and agreed with the content of the manuscript as written.

The paper complies with the Helsinki Declaration, EU Directives and harmonized requirements for biomedical journals.