Transient flank bulge after percutaneous nephrolithotomy

Nariman Gadzhiev, Aram Aloyan, Alexandr Petrov, Ivan Gorgotsky, Andrei Shkarupa

ABSTRACT

Introduction: Percutaneous nephrolithotomy (PCNL) is considered as the “gold standard” treatment for large (>2 cm) and complex kidney stones. We present a case of transient tone loss of the anterolateral abdominal wall, which is a rare complication after PCNL.

Case Report: A 50-year-old male with a complete staghorn stone of the right kidney underwent standard PCNL in prone position at the 11th intercostal space. On the 6th post-operative day the patient complained on painless bulge in the right flank. Computed tomography (CT) scan in supine position revealed no signs of herniation, retroperitoneal hematoma, or residual fragments. Flank bulge was attributed to the muscle tone loss either because of the 11th intercostal nerve injury by the needle or nerve compression by the Amplatz sheath. Within next six months flank bulge has completely resolved.

Conclusion: Flank bulge after PCNL although rare but possible and transient condition. Nerve injury seems to be the most likely cause.

Keywords: Complications, Flank bulge, Percutaneous nephrolithotomy, Urolithiasis

INTRODUCTION

Percutaneous nephrolithotomy (PCNL) has replaced open surgery and is considered as the “gold standard” treatment for large (>2 cm) and complex kidney stones [1]. A common complication of open surgery is the loss of tone of the anterolateral abdominal wall muscles due to nerve injury which looks like a flank bulge [2–5]. Although PCNL is perceived as minimally invasive option nerve injury is still a possible complication [6]. We present a case of transient tone loss of the anterolateral abdominal wall after PCNL, which has resolved spontaneously within six months.

CASE REPORT

A 50-year-old male presented with right flank pain and hematuria. Computed tomography revealed a complete staghorn stone of the right kidney. The patient underwent single tract standard PCNL in prone position at the 11th intercostal (IC) space 3 cm medial from posterior axillary line with 30° puncture angle and was sequentially dilated up to 30 Ch. Total operative time was 85 minutes and completed with nephrostomy tube 12 Fr. Early postoperative period was uneventful. The patient was discharged on the 3rd postoperative day (POD) with nephrostomy tube. However, on the 6th POD patient was readmitted with complains on painless bulge in the right
flank. No history of fever or pain was noted. Computed tomography scan in supine position revealed no signs of herniation, retroperitoneal hematoma, or residual fragments. Flank bulge was attributed to the muscle tone loss. The patient was discharged on the next day without any specific recommendations. Within next six months the bulge has completely resolved (Figure 1).

DISCUSSION

In the era of endoscopy open surgery for kidney stones has become rather obsolete [7, 8]. Nerve injury during lumbotomy can lead to the muscle tone loss of the abdominal wall [2, 3]. Rarely nerves can be injured during PCNL either by direct needle hit during puncture or nerve compression between the Amplatz sheath and the rib (Figure 2). Intercostal (IC) neurovascular bundle courses mainly along the inferior margin of each rib and passes inferior from the 11th rib as it progresses lateral. Despite this, it is further from the 12th rib than from 11th one. Thus, puncture in the lower half of the IC space is potentially safer regarding IC nerve injury [6]. Up to now only three cases of flank muscle tone loss after PCNL are described in the literature [9, 10]. Two of them were performed in prone-flexed position through supracostal (12th rib) access and 12th intercostal space, respectively, to upper calyces without nephrostomy drainage [9]. Third case was performed through subcostal access to lower calyx in prone position with nephrostomy drainage after the surgery [10]. Two out of three described flank bulges have resolved on their own with time. Our case proves the transient character of the flank bulge caused by the nerve damage during PCNL. As most flank bulges are reversible, PCNL is more likely to cause a nerve compression than a nerve transection.

CONCLUSION

Flank bulge after PCNL although rare but possible and transient condition. Nerve injury seems to be the most likely cause.

REFERENCES


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Author Contributions
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