

A rare malformation of urinary system: Right ectopic thoracic kidney

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Abstract

An ectopic kidney is a common developmental anomaly of the urinary system. However, the thoracic kidney (TK) is the rarest state form of an aberrant kidney. The aim of this case report is defining the symptoms in TK diagnosis and constructing a treatment model will promote the best outcomes. These patients come to the physician with the various symptoms, and they could be diagnosed incidentally. In our case, we describe 40 years female patient with severe respiratory problems and upper back pain. In the pulmonary clinic, suspected mass was diagnosed with chest X-ray, and computerized tomography detected nontraumatic nonhernia associated, a truly ectopic TK. Moreover, the thoracic surgeon and urologist team decided to exploration and reconstructed the right ectopic kidney. The 1st month of the control of patient symptoms was disappeared. Overall, TK should be kept in mind in the differential diagnosis of thoracic tumors. Surgical exploration and reconstruction should be thought in patients who have severe respiratory symptoms.

Keywords: Reconstruction, renal malformations, respiratory problems, thoracic kidney

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INTRODUCTION

The human kidneys anatomically are placed in abdomen; the right kidney is slightly lower. Renal ectopia is a renal anomaly which refers to a one or both of the kidneys developed in the abnormal anatomical location other than the normal lumbar region. The congenital disabilities often cause renal ectopia in other organ systems and by a malfunction of prenatal kidney migration.^[1]

It can occur in several forms such as cross fused, thoracic, and pelvic kidney. Thoracic kidney (TK) is a rare type of renal ectopia. Ectopic TK has the lowest incidence rate of <5% of all renal ectopias.^[2] TK has been classified

into four categories: diaphragm eventration, true ectopia, diaphragmatic hernia and traumatic diaphragm injuries.^[3] It is a very rare form of the ectopic kidney. Patients are discovered incidentally usually found in males and at left side.^[4] Most often asymptomatic and an ectopic kidney may function normally, even though it is not in its usual position. In other cases, an ectopic kidney may cause abdominal pain, respiratory or urinary problems. In the literature, more than one hundred TK cases were reported.^[5] As a different the other published cases, we present reconstructive surgery case of the truly right TK without a hernia, eventration, and outcomes of the procedure.

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Figure 1: Kidney placed right mediastinum and compress the right lung at coronal plane in thorax computerized tomography (a) and right kidney lying close to diaphragmatic cruris in the axial plane (b)

CASE REPORT

A 40-year-old woman presented with shortness of breath and severe back pain to pulmonary disease outpatient clinic for 2 years. She did not have a previous operation and trauma history and comorbidities which require medications. The absence of breathing sounds from the right lung was noticed at the physical examination. Suspected chest mass was diagnosed with X-ray, and computerized tomography (CT) detected nontraumatic nonhernia associated, a truly ectopic TK [Figure 1a and b]. Moreover, thoracic surgeon and urologist decided to operate the patient, because the kidney might be the primary cause of the respiratory troubles and the back pain as well. As a result of the exploration, the surgeons saw that the diaphragm was lying under the right kidney which malrotation around 180° and it compressed the right side of the lung [Figure 2a]. After the diaphragmatic incision released the organ around the connective tissue and re-suturization of the diaphragm over that, fixed the right side intercostal muscles and Prolene mesh put over there to reinforcement and protect against *de novo* a hernia [Figure 2b]. The 1st month of the control of patient everything has seen usual; her symptoms were disappeared.

DISCUSSION

Ectopic TK has the lowest incidence rate of all renal ectopias. However, patients are most often asymptomatic, and an ectopic kidney may function normally,^[2] an ectopic kidney may cause abdominal pain, respiratory, or urinary problems. These abnormalities are discovered by the X-rays incidentally, and they need further investigations.

Overall, TK morbidity rates declined thanks to advances in detection and treatment, as imaging technologies and medical developments. Khoshchereh *et al.*^[6] presented the rarest form of nontraumatic nonhernia associated, truly ectopic TK. They discussed diagnosis and management options and classification of this rare form of the aberrant

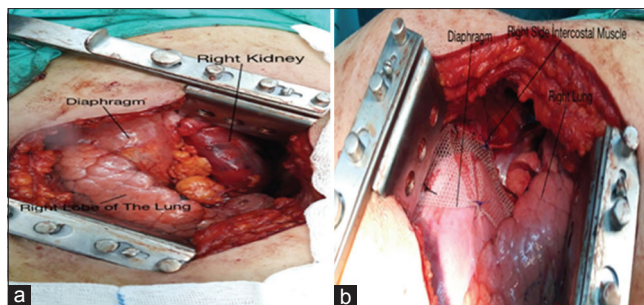


Figure 2: Operative view shows contiguity of the organs before the repair (a) and the repairment of the diaphragm with the Prolene mesh (b)

kidney. Szmigielska *et al.*^[1] examined the case of kidney's absence in its typical location in children and described a boy with the prenatal ultrasound diagnosis of the left kidney agenesis.

The vast majority of the cases were admitted to regular follow-up schedule. In our case, other abdominal organs have not been in the thoracic cavity and diaphragm was solid. Although performing a thoracic exploration was extremely dangerous, severe respiratory problems did not leave the surgeon another chance. Reconstructive surgery was carried out to reduce the respiratory problems; it is unique in the literature with these aspects.

CONCLUSION

A TK is a rare form of the ectopic kidney. However, the patients who have severe respiratory problems should bring to mind the TK. Reconstructive surgery could be beneficial for these patients when regards with the pros and cons.

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Conflicts of interest

There are no conflicts of interest.

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