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Prikaz slučaja /
Case report

RENAL CHORISTOMA- CLEAR CELL RENAL CELL CARCINOMA IMITATOR

HORISTOM BUBREGA- IMITATOR SVETLOĆELIJSKOG KARCINOMA

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Ključne reči

pektopično tkivo nadbubrega, horistom bubrega, svetloćelijski karcinom bubrega, inhibin, RCC

Abstract

Introduction: Intrarenal ectopic adrenal tissue is rare asymptomatic and non-functionalfinding in adults that accounts approximately 1% of adult population. It occurs as aembryological development disorder due to fragmentation and scattering of adrenal cells to kidney and other anatomic sites, as well. **Case report:** We are presenting a 78-years-old female patient who was reported to Urology Clinic of Clinical Center of Vojvodina due to surgical treatment of right ureter tumor. In addition tothe previously diagnosed ureteral high grade urothelial carcinoma, detailed histopathological examination revealed another lesion in renal parenchyma composed of nested clear cells with mild to moderate nuclear atypia and pleomorphism. Because of suspected well differentiated clear cell renal cell carcinoma, immunohistochemical (IHC) stainings were done to determine the origin of the clear cells. IHC results (inhibin+, calretinin+, Melan A+, RCC-, PAX8-) supported the diagnosis of ectopic adrenal nest- choristoma of the kidney. **Conclusion:** Ectopic adrenal tissue is usually reported in the pediatric population, whereas it is rarely found in the adults. Because of the great morphological similarities but completely different biological origin and treatment, in order to avoid misdiagnosing, pathologists should be careful and use additional immunohistochemical stainings in the case of finding light cell lesions in the kidney.

INTRODUCTION

The ectopic adrenal tissue predominantly occurs in neonates. Approximately only 1% off all cases is reported in adults, suggesting that it frequently undergoes atrophy with age. It usually regresses in early infancy [(1)]. In most cases, it is incidentally found around adrenal gland or sex organs [(2)].

Embryologically, around 30th day of gestation, proximal to the gonadal blastema, the adrenocortical primordium is formed by the invagination of coelomic epithelium. Along gonadal migration pathway, fragments of adrenocortical tissue can shed off and form ectopic adrenal glands. In rare cases, ectopic adrenal tissue can be found in distant sites [(3-5)]. Also, ectopic adrenal tissue can be found in other anatomic sites along the line of gonadal descent from the upper abdomen like celiac plexus, kidney, testis, epididymis, liver, but it can be found in organs that don't have an obvious embryological explanation, such as lungand brain [(6)].

They are usually non-functional, asymptomatic, without clinical significance and discovered accidentally during autopsies or in surgical specimens. Occasionally, but very rare, ectopic adrenal tissue can undergo hyperplasia and may develop adrenocortical adenoma or carcinoma.Although cortical tissue is single component of ectopic adrenal tissue in all reported cases, it may be consisted of both cortex and medulla, depending on the time when the migration disorder occurred. Actually, if breaking event occurs after migration of neural crest tissue into cortex, the ectopic adrenal tissue will have both cortex and medulla, or only cortex if the breaking occurs before junction of those two parts [(7)].

Due to histological similarity to most common malignant renal neoplasm clear cell renal cell carcinoma which can mimic this entity, ectopic adrenal tissue in kidney can be sometimes a diagnostic challenge for the pathologist.

CASE REPORT

In November 2019, a 78-years-old female patient was reported to Urology Clinic of Clinical Center of Vojvodina due to surgical treatment of right ureter tumor with consecutive hydronephrosis of the ipsilateral kidney. After physical

and routine laboratory examination and an adequate preoperative preparation, right nephrectomy was performed and the specimen was sent to the pathology department.

Gross examination revealed the kidney measuring 10x4x4 cm with ureter 21 cm in length fulfilled with tumor mass in segment of 3 cm length. Pyelo-calix system was significantly expanded, while renal parenchyma was very reduced with presence of few little cortical cysts. Also, in the upper pole of the kidney, there was subcapsular yellowish node 0,5 cm in size.

On routine hematoxylin and eosin (HE) staining tumor mass of ureter showed high grade urothelial carcinoma (Figure 1) consisted of atypical urothelial cells arranged into papillas with predominantly pushing margins but presence of spare invasive focusesto lamina propria (stage pT1). Muscular layer was intact. Subcapsular kidney node was composed of solid nests and islets of cells with abundant clear cytoplasm and hyperchromatic nuclei with mild to moderate atypia and pleomorphism similar to clear cell renal cell (Figure 1a, 1b, 1c). Special immunohistochemical (IHC) stainings were performed and it showed positivity for Calretinin (Figure 2d), Inhibin (Figure 2e) and Melan A (Figure 2f), while the same cells were immunonegative for PAX-8 (Figure 2g) and RCC (Figure 2h).Based on histological and immunohistochemical description of the subcapsular tumor node, the diagnosis of ectopic adrenal tissue- kidney choristoma was set.

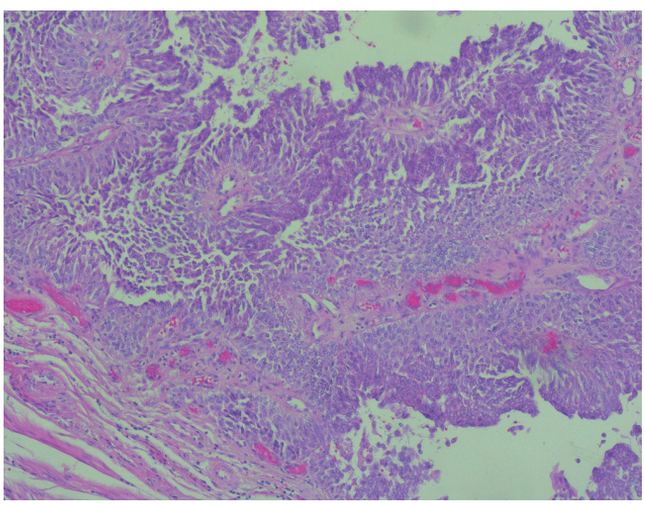

Figure 1. *High grade urothelial carcinoma, HE, 100x.*

DISCUSSION

Ectopic adrenocortical tissue can be found in pediatric population and usually regresses by puberty, while it is very rare finding inadult patients [8]. It occurs in about 1% of the adult population and up to 50% of neonates [1]. It represents embryological developmental abnormality and can rest in any visceral organ, more frequently in the kidney, liver and gonads.

Ectopic adrenal tissue is usually found incidentally in surgical specimens or at autopsy. It is usually asymptomatic, although it can undergoes significant hyperplasia that leads to adrenocortical adenoma or even carcinoma. Case with gross hematuria is reported as well [9].

Morphologically, ectopic adrenal tissue can be misdiagnosed as malignant tumor tissue. It may mimic low grade clear cell renal cell carcinoma at first line, especially when it is composed of clear cells predominantly, so in absence of all three cell types or loss of normal adrenal architecture,

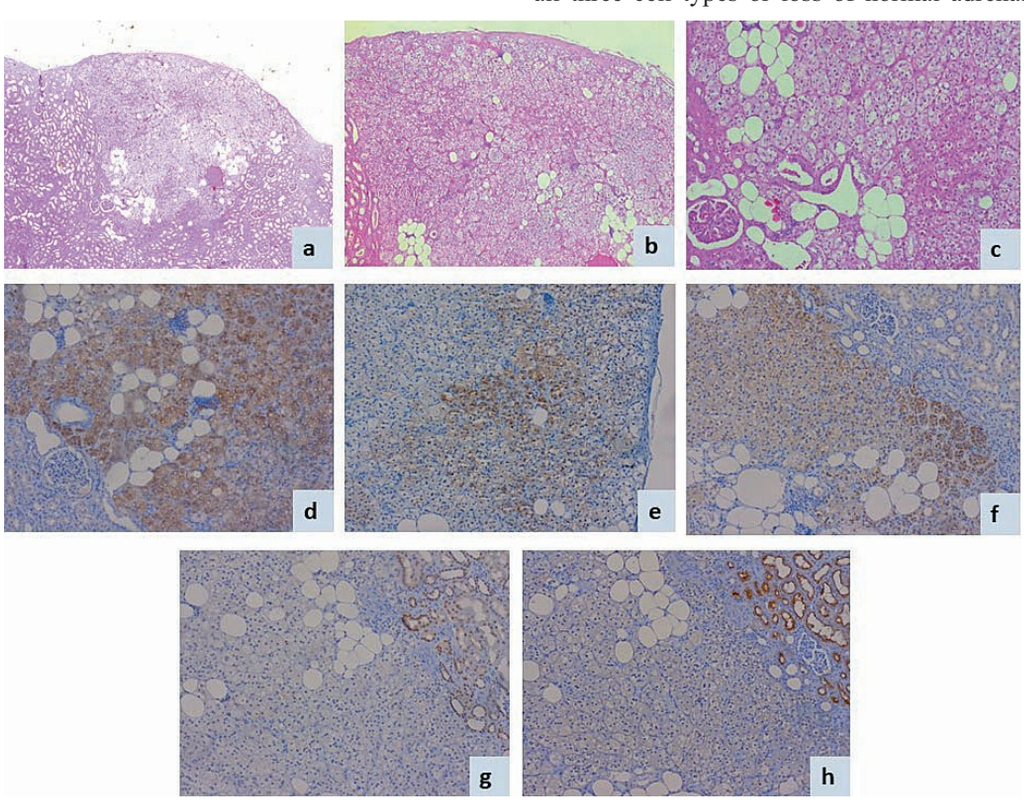

Figure 2. *a) Ectopic adrenal tissue in kidney, HE, 25x; b) Ectopic adrenal tissue in kidney, HE, 50x; c) Ectopic adrenal tissue in kidney, HE, 100x; d) Calretinin positivity of ectopic adrenal cells, IHC, 100x; e) Inhibin positivity of ectopic adrenal cells, IHC, 100x; f) Melan A positivity of ectopic adrenal cells, IHC, 100x; g) PAX-8 negativity of ectopic adrenal cells and positivity of surrounding renal cells, IHC, 100x; h) RCC negativity of ectopic adrenal cells and positivity of surrounding renal cells, IHC, 100x;*

ectopic adrenal tissue represents a diagnostic challenge for pathologist. This is especially important for needle biopsy specimen and frozen section material.

Fromer et al[10] reported a case of nonencapsulated adrenal tissue in both kidneys of cadaveric donor. Intraoperative frozen section analysis was performed and those lesions were interpreted as 'small oncocytic tumor, chomophobe renal cell carcinoma cannot be excluded' leading to the removal of both kidneys from the two transplant recipients. Definitive pathological report showed diagnose of adrenal tissue in kidney parenchyma. Morphological features supporting the diagnose of adrenal tissue is at least focally preservation of normal adrenal architecture, absence of cytological atypia, absence of necrosis and lymphovascular invasion, presence of scattered adipocytes and intermediate to large caliber blood vessels.

The immunohistochemistry is sovereign analysis method for differentiation of ectopic adrenal tissue and renal carcinomas. Adrenocortical tissue is usually positive for inhibin, calretinin and Melan A, and negative for Pax8, RCC, CD10, EMA and pancytokeratin, while this panel is opposite for clear cell renal cell carcinoma [11, 12]. Recent studies have recommended the use of other markers such as ENT1 or SRC1 in order to identify adrenal tissue [13].

CONCLUSION

Although kidney choristoma has no clinical significance, pathologists have to be careful with finding of clear cell nests in kidney parenchyma, especially on frozen sections or limited material. Except when due to atypia, pleomorphism and other tumor characteristics it is obvious that it is clear cell renal cell carcinoma, it is always good to perform immunohistochemical staining to examine the origin of clear cells to avoid misdiagnosing, especially when it is about small subcortical clear cell lesions.

We reported a case of intrarenal adrenal tissue associated with urothelial carcinoma of ureter, although there is possibility of coexistence of two malignant tumors, it is important to be aware of consideration of this entity.

Declaration of Conflicting of Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Sažetak

Uvod: Ektopično tkivo nadbubrežne žlezde u bubregu je asimptomatska, afunkcionalna promena koja je veoma retka kod odraslih čineći oko 1% svih nalaza u odrasloj populaciji. Nastaje usled poremećaja embriološkog razvoja kada dolazi do fragmentacije i rasipanja, lutanja nadbubrežnih ćelija do bubrega i drugih anatomskih lokalizacija. **Prikaz slučaja:** Prikazujemo 78-godišnju pacijentkinju koja je primljena na Kliniku za urologiju Kliničkog centra Vojvodine zbog planiranog hirurškog lečenja tumora desnog uretera. Uz prethodno dijagnostikovani visoko gradusni urotelni karcinom uretera, detaljan histopatološki pregled otkrio je još jednu leziju u bubrežnom parenhimu sastavljenu od gnezda svetlih ćelija sa blagom do umerenom nuklearnom atipijom i pleomorfizmom. Zbog sumnje na dobro diferentovani svetloćelijski karcinom bubrega, tražena su dodatna imunohistohemijska (IHC) bojenja kako bi se utvrdilo poreklo pomenutih svetlih ćelija. Rezultati imunohistohemijske analize (inhibin +, calretinin +, Melan A +, RCC-, PAX8-) išli su u prilog dijagnoze ektopičnog adrenalnog tkiva, odnosno horistoma bubrega. **Zaključak:** Ektopično nadbubrežno tkivo obično se javlja u pedijatrijskoj populaciji, dok su kod odraslih ovi nalazi vrlo retki. Zbog značajnih morfoloških sličnosti ali potpuno različitog biološkog porekla i lečenja, u cilju izbegavanja pogrešnog dijagnostikovanja patolozi bi trebalo da budu oprezni i da koriste dodatna imunohistohemijska bojenja u slučaju pronalaženja svetloćelijskih promena u bubrežnom parenhimu.

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