

Cystic Ectasia of the Rete Testis: Clinical and Radiographic Features

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Abstract

Introduction: Tubular ectasia of the rete testis is a benign condition due to dilatation of the rete testis. It is a rare and underreported condition in medical literature, particularly in Sub-Saharan Africa. Typical sonographic appearance is a cluster of small anechoic structures in the confluence of the mediastinum testis without a solid component or vascularization on color Doppler. **Case Report:** We report the case of a 66-year-old man who presented to our department with a palpable testicular mass for 1 year. His medical history was unremarkable, with no history of herniorrhaphy, vasectomy, epididymitis, or trauma. On physical examination, the right testis was swollen and firmer. Testicular ultrasound showed clustered anechoic tubular structures in the rete testis of the right testis. No solid components or calcifications were observed. Doppler studies showed no evidence of impaired blood flow. Overall, the appearance of the right testis was highly suggestive of intratesticular cysts with tubular ectasia. The patient was managed conservatively, and repeat scrotal ultrasound scans at 6 months showed no change in pathology. **Conclusion:** Cystic ectasia of the rete testis is a benign condition with a characteristic appearance that is often incidentally detected on ultrasound. Increased awareness of this entity can prevent unnecessary investigations, biopsies, and surgical interventions, ensuring appropriate and conservative management for affected patients.

Keywords

Rete Testis, Cystic Ectasia, Ultrasound

1. Introduction

Rete testis is an anastomosing network of delicate tubules located in the hilum of

the testicle (mediastinum testis) that carries sperm from the seminiferous tubules to the vasa efferentia. Rete tubular ectasia is a disorder of the rete testis in which many benign cysts are present. It is a rare benign entity having a typical sonographic appearance of a cluster of small anechoic structures in the confluence of the mediastinum testis without a solid component or vascularization on color Doppler. It is usually asymptomatic and discovered incidentally on ultrasound [1].

It is essential to differentiate this condition from other testicular pathologies, including tumors, in order to avoid unnecessary surgical interventions.

This condition is mainly reported in men over 65 years of age. It is probably due to the relaxation with age of the supporting fibroconnective tissue; however, some cases have been described in younger patients too [2].

In Sub-Saharan Africa, documentation of cases of cystic ectasia of the rete testis is limited. However, Zineb Abbad El Andaloussi *et al.* in 2021 [3] reported a case from Morocco, where cystic dilatation of the rete testis was diagnosed in a patient. This publication suggests that, although rare, cases do exist in the region.

We report the sonographic features of cystic ectasia of the rete testis in a 66-year-old man.

2. Case Report

We report the case of a 66-year-old man who presented to the radiology department of the teaching hospital of Angre with a palpable testicular mass for 1 year.

His medical history was unremarkable, with no history of herniorrhaphy, vasectomy, epididymitis, or trauma. On physical examination, the right testis was swollen and firmer than the left, with no clearly identifiable lesion on palpation. Serum testicular tumor markers (α -fetoprotein and β -human chorionic gonadotropin) were all within normal limits.

GE Healthcare VERSANA ESSENTIAL machine performed the exam. Ultrasound of the scrotum consisted of imaging the testes, epididymides, and spermatic cords in a systematic fashion. A 7 to 15 MHz transducer was used. Transverse and longitudinal images were obtained, and a color Doppler ultrasound was performed.

Testicular ultrasound showed testicles of normal dimensions (**Figure 1** and **Figure 4**) and clustered anechoic tubular structures in the rete testis of the right testis. No solid components or calcifications were observed. Doppler studies showed no evidence of impaired blood flow (**Figure 2**). The epididymal head was a well-circumscribed pure anechoic formation with a thin, regular wall, measuring 20 mm \times 14 mm. It was located cranially to the testis, partially replacing the right epididymis (**Figure 3** and **Figure 4**). Fluid was also present in the right vaginalis. The left testis and epididymis had a normal appearance.

Overall, the appearance of the right testis was highly suggestive of intratesticular cysts with tubular ectasia of the rete testis, associated with an epididymal head cyst with a localized hydrocele.

The patient was managed conservatively, and repeat scrotal ultrasound scans

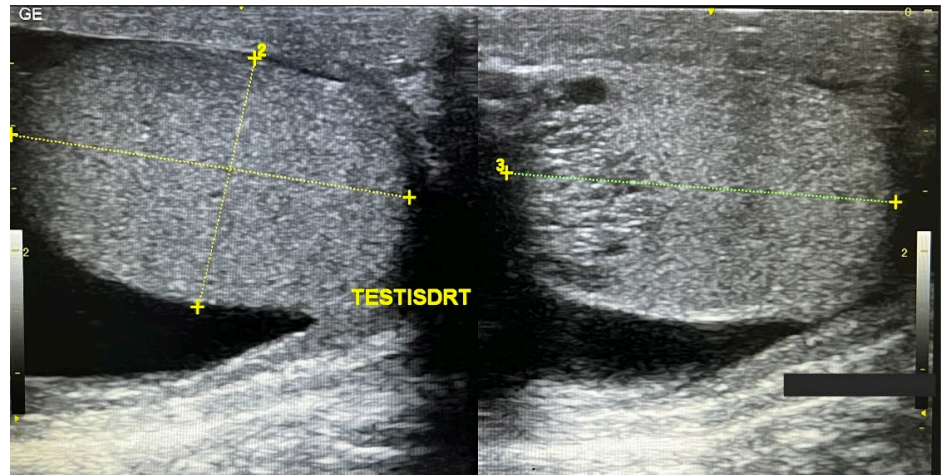


Figure 1. The right testis.

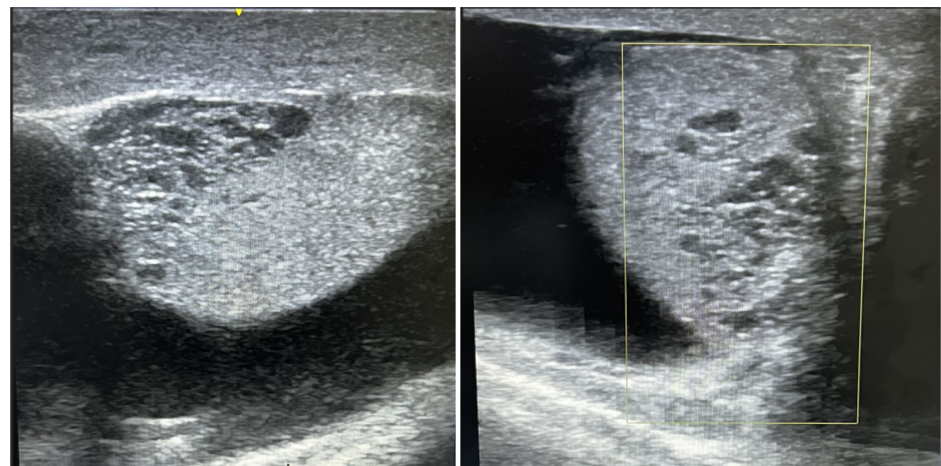


Figure 2. Highlighting of a group of small anechoic structures at the level of the confluence of the testicular mediastinum without solid component or vascularization on color Doppler associated with a large hydrocele.

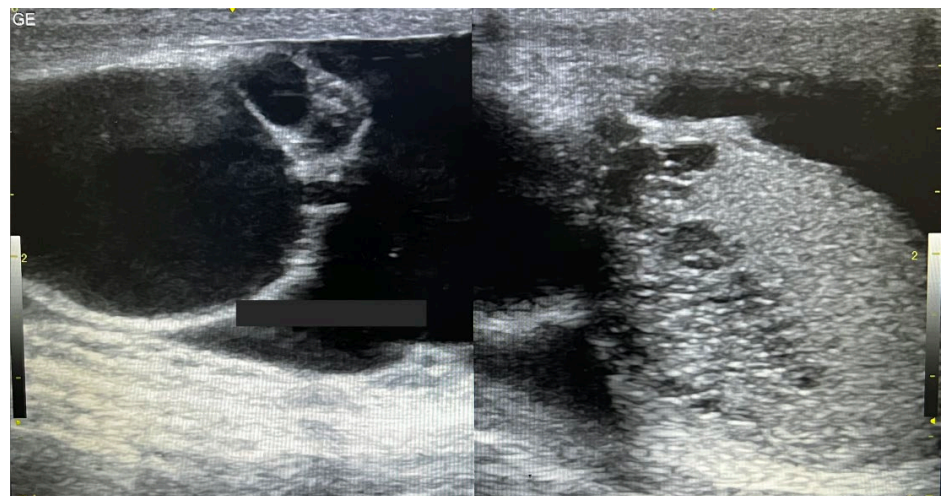


Figure 3. Presence of a cystic formation with pure anechoic content with a thin and regular wall of the head of the right epididymis.

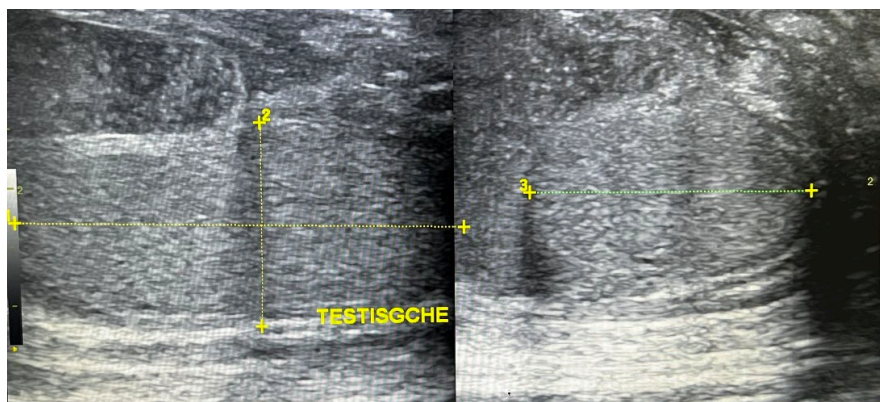


Figure 4. The left testis.

at 6 months showed no change in pathology. Serum tumor markers during this period were also unremarkable.

3. Discussion

The rete testis is a complex anastomosis of seminiferous tubules located in the mediastinum testis. Its drainage occurs via several efferent ductules, which open to form the head of the epididymis [4].

Cystic tubular ectasia of the rete testis of the testes is a benign condition that usually manifests in subjects in the sixth decade of life, related to the reworking of the fibrous and connective components with age of the testicular supporting tissue [5]. In our case, it was a 66-year-old patient with no particular medical history and no children.

The cystic transformation of the rete testis is mainly an adult injury. It has been found in 1.6% of autopsy studies and in surgical specimens obtained incidentally for other reasons [6].

In Sub-Saharan Africa, particularly in Ivory Coast, the prevalence of cystic ectasia of the rete testis is not known. However, clinical cases have been described, the most recent dating from 2021 in Morocco by Zineb Abbad El Andaloussi *et al.* [3]. However, the rarity of this pathology in our regions could be explained by an insufficient number of specialist doctors and a low level of diagnostic tools.

The pathogenesis is thought to be due to obstruction at the level of, or distal to, the efferent ductules at the epididymal head. This subsequently leads to dilation in the proximal ductal system, manifesting as tubular ectasia [4].

Cystic ectasia of the rete testis may be related to urological conditions that are associated with epididymal obstruction, such as vasectomy, spermatocele, or epididymitis [7]. However, in this case, the patient's medical history was unremarkable, with no history of herniorrhaphy, vasectomy, epididymitis, or trauma.

The typical appearance of the rete testis is an echogenic structure communicating from the mediastinum testis to the epididymal head. The rete is usually located at the postero-lateral aspect of the testis. Occasionally, the rete may be anechoic with numerous tiny round or tubular structures, indicating tubular ectasia

of the rete testis. The cysts may track along the mediastinum and be quite variable in size and number. However, to our knowledge, there are no standardized criteria for the size or number of these cysts for diagnosing cystic rete testis in the radiological literature [8].

Both the ultrasound characteristics and clinical history should allow the distinction of tubular ectasia of the rete testis. On ultrasound, this benign entity consists of tubular cystic spaces, without a focal solid component, always located peripherally in the region of the mediastinum testis. Although these lesions are usually not palpable, they are often associated with spermatoceles or epididymal cysts and most often represent a finding in older men [9].

Cystic ectasia of the rete testis must be differentiated from other benign intratesticular lesions, notably cystic dysplasia and intratesticular varicocele. Cystic dysplasia is similar sonographically and histologically, but it is a congenital lesion that is typical in children and associated with renal or urogenital excretory duct malformations. Cystic ectasia can be differentiated from intratesticular varicocele on color Doppler ultrasound. Furthermore, cystic ectasia should be distinguished from the rare adenocarcinoma of the rete testis, in which a solid mass in the rete testis should be evident [8].

While there is no pathological confirmation in our case, the ultrasound findings and clinical history confirm the diagnosis. According to previously published reports, this diagnosis can be reliably established on the basis of the described clinical and sonographic criteria [1] [3] [8].

4. Conclusion

Cystic ectasia of the rete testis, also known as tubular ectasia, is a benign condition with a characteristic appearance that is often incidentally detected on ultrasound. It is commonly associated with epididymal obstruction due to conditions such as vasectomy, spermatocele, or epididymitis. Despite its complex and varied etiology, this condition remains non-neoplastic and should be distinguished from testicular malignancies using clinical parameters such as patient age, presentation, tumor markers, and imaging findings on grayscale ultrasound and Doppler examination.

Recognizing the imaging features of tubular ectasia and its frequent association with benign conditions is essential, particularly in older individuals. Increased awareness of this entity can prevent unnecessary investigations, biopsies, and surgical interventions, ensuring appropriate and conservative management for affected patients.

Consent

All authors declare that written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial Office/Chief Editor/Editorial Board members of this journal.

Ethics Statement

This case report adheres to the highest standards of ethical conduct in research and publication. Patient information has been appropriately identified or excluded to protect privacy. This study conforms to the ethical guidelines of the Declaration of Helsinki and relevant institutional standards for the research and publication of anonymized patient data.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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