Segmental Testicular Infarction – Is Conservative Management Feasible?

Introduction

Segmental testicular infarction is a relatively uncommon and benign finding. It occurs predominantly in the second and third decade of life. The main symptoms are unilateral and scrotal as seen in more common conditions such as testicular torsion, epididymitis, orchitis, or blunt trauma.

The primary testis investigation method is ultrasonography (US) with color Doppler. Normally segmental testicular infarction is seen as a round or wedge-shaped hypoechoic lesion within the testicle in combination with absent or low blood flow. In contrast, vascular testicular lesions are often malignant. However, US alone cannot rule out testicular neoplasms, since hypovascularity of testicular tumors has been described.

Fig. 1  a Initial scan: B-mode and color Doppler ultrasonography of the left testicle, showing an inflamed left epididymis and a well-defined round inhomogeneous hypoechoic non-vascular lesion. b First follow-up ultrasonography after one month: Revealed normalization of the previous changes in the epididymis and the testicular lesion had reduced by more then 50% in size and was still hypoechoic and non-vascular. c Second follow-up ultrasonography after four months: Revealed focal atrophy in the upper pole of the testicle and slight return of vascularity.
The majority of patients with testicular lesions undergo either surgical exploration or complete or partial unilateral orchiectomy due to patient concern, inconclusiveness of the US diagnosis, or a lack of knowledge regarding the diagnosis (EJ Street et al. Int J STD AIDS 2017; 28(8): 744 – 749).

In this case report we present two examples of segmental testicular infarction with an emphasis on B-mode and color Doppler US as a follow-up modality.

**Case description**

**Case 1**

A 56-year-old male reported to the ER with severe pain in the left side of the scrotum for a few days. The patient reported no dysuria or history of scrotal trauma. Objective findings were mild reddening of the scrotum and swelling of the left testicle and epididymis.

Infection parameters were slightly elevated and tumor markers (alpha-fetoprotein & human chorionic gonadotropin (hCG)) were found to be normal. Bedside scrotal US performed by the urologist showed signs of epididymitis, and the patient was referred to the radiology department for confirmation of the diagnosis.

▶ **Fig. 2**  

a Initial scan: B-mode and color Doppler ultrasonography of the left testicle, showing a well-defined inhomogeneous hypoechoic non-vascular lesion.  

b First follow-up ultrasonography after one month: Revealed normalization of the previous changes in the testicular lesion which had reduced by more than 50% in size and was still hypoechoic and nonvascular.  

c Second follow-up ultrasonography after four months: Revealed focal atrophy in the middle of the left testis.
B-mode and color Doppler US revealed an inflamed left epididymis and a well-defined, round inhomogeneous hypoechoic and non-vascular lesion in the upper pole of the left testicle. Segmental testicular infarction was suspected and a conservative approach with repeated biochemistry and follow-up scrotal US at one and four months was decided upon.

The first follow-up examination after one month revealed normalization of the previous changes in the epididymis and the testicular lesion had reduced by more than 50% in size and was still hypoechoic and non-vascular. The second follow-up examination at four months showed focal atrophy in the upper pole of the testicle and a slight return of vascularity (▶Fig. 1). Furthermore, biochemistry findings normalized and tumor markers did not increase, thus segmental testicular infarction was the final diagnosis.

Case 2
A 25-year-old male under treatment for chlamydia came to the ER with acute severe pain in the left side of the scrotum. Objective findings were swelling and pronounced palpatory discomfort of the left testicle.

Infection parameters were slightly elevated and alpha-fetoprotein and hCG were normal. The patient was referred to the radiology department for an acute US examination as the diagnosis was inconclusive.

B-mode and color Doppler US revealed a well-defined wedge-shaped hypoechoic inhomogeneous and non-vascular lesion in the middle of the left testicle, involving approximately one third of the entire testicle. Segmental testicular infarction was suspected and a conservative approach with repeated biochemistry and scrotal US follow-up was decided upon.

Biochemistry findings normalized and tumor markers did not increase during follow-up. The first US after one month showed a decreasing size of the wedge-shaped hypoechoic non-vascular lesion. The four-month follow-up US examination showed focal atrophy of the left testicle (▶Fig. 2). The final diagnosis was segmental testicular infarction.

Discussion
Segmental testicular infarction is a rare condition and only sporadically described in the medical literature. However, it is an important condition to consider since knowledge there-of may spare patients unnecessary surgery. Existing literature reveals that even though segmental testicular infarction is diagnosed based on B-mode and color Doppler US, most patients still undergo complete or partial unilateral orchectomy (EJ Street et al. Int J STD AIDS 2017; 28(8): 744 – 749).

In conclusion, segmental testicular infarction is a relatively uncommon and benign finding. Ultrasound including CEUS is an indispensable diagnostic tool to rule out testicular malignancy and avoid surgery, MRI, and follow-up imaging.

Conflict of Interest
The authors declare that they have no conflict of interest.

Authors
Camilla Brinkmann Bak-Ipsen1, Stine Degn1, Linea Sandfeld Bilchart Refsgaard2, Tommy Kjærgaard Nielsen3, Henriette List1, Ole Graumann3

Affiliations
1 Department of Radiology, Aarhus University Hospital, Aarhus
2 Department of Urology, Aarhus University Hospital, Aarhus
3 Department of Radiology, Odense University Hospital, Odense

Correspondence
Dr. Ole Graumann
Department of Radiology, Odense Universitetshospital
Klevervangen 10
5000 Odense
Denmark
Tel.: +4522910914
olegraumann@dadlnet.dk

Bibliography
Ultrasound Int Open 2020; 6: E50–E52
DOI 10.1055/a-1270-7795
ISSN 2199-7152
© 2020. The Author(s).
This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial-License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (https://creativecommons.org/licenses/by-nc-nd/4.0/)
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany