Testicular Microlithiasis in Pseudoxanthoma Elasticum

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Purpose

To determine the presence of testicular microlithiasis (TM) in males with pseudoxanthoma elasticum (PXE).
Materials and Methods

Institutional review board approval was obtained for both prospective and retrospective components of the study. Testicular ultrasonography was performed on eight adult males, age 29 to 56, and one adolescent male, age 13, with confirmed PXE. Two radiologists reviewed these ultrasounds by consensus for TM, testicular masses, and additional testicular pathology. TM was classified as classic (at least 5 microliths demonstrated on a single ultrasound image) or limited (fewer than five microliths on all ultrasound images). Urological physical exams were performed when possible. A history of testicular disease or symptoms was also taken at the time of exam. Retrospective analysis of testicular ultrasounds of two adult males, ages 48 and 59, and one adolescent male, age 13, were also included similarly reviewed. Testicular pathology was examined in one autopsy case.
Results

Twelve participants were included. Eleven (92%) had classic CTM and one (8%) had limited LTM. None of the twelve participants had a testicular malignancy. Autopsy pathology showed intratubular microlithiasis without calcification of elastic fibers in vessel walls that is characteristic of cutaneous PXE.
Conclusions

A strong association exists between PXE and TM. An association has been reported between TM and testicular cancer. Our findings suggest an association between PXE and testicular microlithiasis (TM). Eleven of twelve participants were found to have CTM and the other LTM. It is possible that TM in males affected by PXE is related to their underlying pathology of pseudoxanthoma elasticum and may not represent an increased risk for testicular cancer.
<table>
<thead>
<tr>
<th>Age</th>
<th>TM</th>
<th>Additional Ultrasound Findings</th>
<th>History</th>
<th>Physical Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Prospective Participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49 yo</td>
<td>Classic</td>
<td>Small bilateral hydrocele</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>38 yo</td>
<td>Classic</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>56 yo</td>
<td>Classic</td>
<td>-</td>
<td>Trauma, epidydimitis</td>
<td>Left testic testis smaller than right. No palpable masses.</td>
</tr>
<tr>
<td>32 yo</td>
<td>Classic</td>
<td>Bilateral anechoic foci consistent with intratesticular cysts</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>29 yo</td>
<td>Classic</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>53 yo</td>
<td>Classic</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>55 yo</td>
<td>Limited</td>
<td>-</td>
<td>Infertility, testicular biopsy- “embryonic tag”</td>
<td>Small nodule on left testis at site of appendix testis. No palpable masses.</td>
</tr>
<tr>
<td>56 yo</td>
<td>Classic</td>
<td>-</td>
<td>Inguinal hernia repair</td>
<td></td>
</tr>
<tr>
<td>13 yo</td>
<td>Classic</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
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<td>Retrospective Participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 yo</td>
<td>Classic</td>
<td>Testicular torsion</td>
<td>Testicular pain</td>
<td>N/A</td>
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<tr>
<td>48 yo</td>
<td>Classic</td>
<td>Extratesticular simple cyst</td>
<td>Testicular mass</td>
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<tr>
<td>59 yo</td>
<td>Classic</td>
<td>Hypoechoic testicular mass-hematoma by biopsy</td>
<td>Testicular mass</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Figure 1
Sagittal gray scale US image shows scattered echogenic foci (arrow) throughout the left testis consistent with microlithiasis.
Figure 2
Transverse gray scale US image shows scattered echogenic foci (arrow) throughout the right testis consistent with microlithiasis.
Figure 3
Testicular histopathology in a 44 year old male with PXE.

A) A microlith (asterisk) is wholly contained within a seminiferous tubule surrounded by a thickened basement membrane (arrows); H&E stain.

B) In this Verhoeff stained section, the elastic fibers (arrows) of a small-to-medium sized artery are fragmented and serpentine in appearance. The arterial lumen is identified (asterisk). Bar, 50 um.
REFERENCES