

Cholesterol Granuloma of Left-sided Hydrocele Sac Mimicking Testicular Tumor

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ABSTRACT

Cholesterol granuloma is a rare inflammatory reaction of tunica vaginalis that occur in response to deposition of cholesterol crystal and may simulate an intrascrotal tumor on physical examination, on ultrasound, and at operation. It can be very difficult to preoperatively distinguish testicular tumors from cholesterol granulomas of the testis or epididymis. Therefore, cholesterol granuloma should be kept in mind in patients with large and non-tender scrotal masses. Here, we report a rare case of cholesterol granuloma of hydrocele sac in a 40 year old man who presented with non-tender left scrotal mass. Patient was operated for vaginal hydrocele which on histopathological examination revealed cholesterol granuloma.

INTRODUCTION

Cholesterol granulomas are a type of non-specific inflammatory reaction to the presence of a foreign body such as cholesterol crystals.¹ They are found most commonly in the paranasal sinuses or temporal bones, but there are also rare reports of their occurrence in the testicular and epididymal sites as well as other sites like peritoneum, parotid gland, lymph nodes, thyroglossal duct, kidney, liver, and spleen.^{2,3} They are rare testicular and epididymal lesions. This lesion might be caused by trauma and inflammation. We report a case of cholesterol granuloma in hydrocele sac with an equivocal ultrasonographic appearance that mimicked a testicular tumor.

CASE REPORT

A 40 years old male presented to urology OPD with complains of swelling in left side scrotum since 6 months which was gradually increasing in size. The patient was apparently asymptomatic with no signs of fever or acute

infection. Mild scrotal discomfort was present. His past medical history was irrelevant; the patient was not hypercholesterolemic. The patient denied any history of known scrotal trauma. Laboratory studies including a complete blood count profile, basic biochemical profile, and urinalysis were all within normal ranges. The patient's medical history was unremarkable with respect to tuberculosis, sarcoidosis, syphilis, and fungal infections. Physical examination revealed large tense non-tender scrotal swelling, testes were not palpable separately and transillumination were negative. Abdominal and pelvic ultrasonography shows mild hepatomegaly. A scrotal ultrasonography revealed bilateral normal testes with large left hydrocele and small right hydrocele (Figure 1). Surgery of large left hydrocele by lord placcation was done. At operation, yellowish turbid fluid along with thick sac was found.



Figure 1: High frequency ultrasound reveals large left hydrocele and small right hydrocele. The testes and epididymis were normal in detailed scan.

In histopathology laboratory, already cut open sac m/s 8x4x3 cm was received. Both outer and inner surface of sac was grey white with grey brown in color. Microscopic examination revealed mostly fibrocollagenous tissue, mixed inflammatory infiltrate consisting of lymphocytes, and few histiocytes, eosinophils along with presence of numerous cholesterol crystals, multinucleated foreign body giant cells (Figure 2 and 3). Based on these findings, the final diagnosis of a cholesterol granuloma of hydrocele sac was rendered.

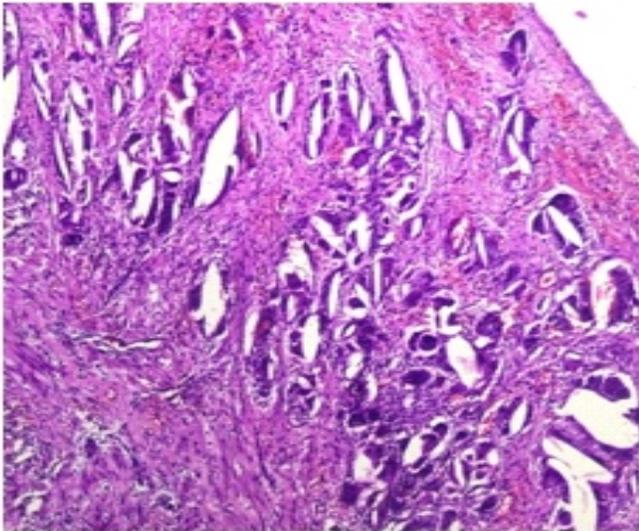


Figure 2: 10x view showing numerous cholesterol clefts.

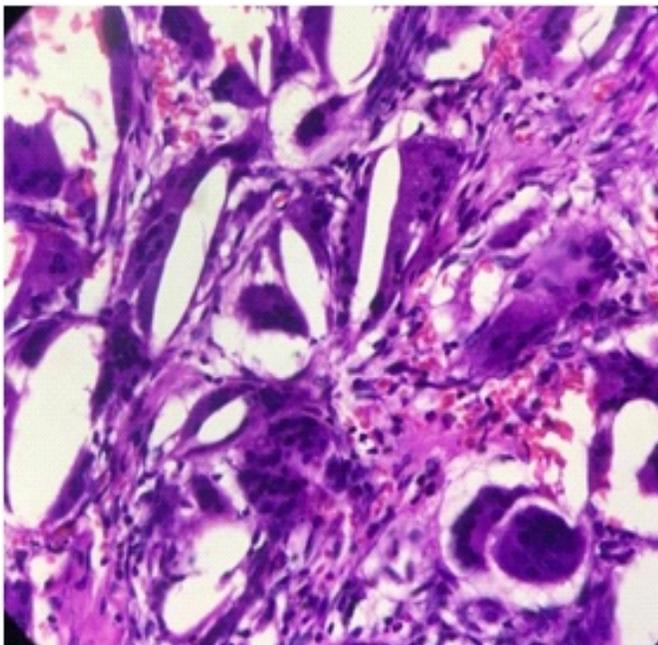


Figure 3: 40x view showing cholesterol clefts along with foreign body giant cell inflammatory reaction.

DISCUSSION

Cholesterol granuloma is a fibrogranulomatous lesion that develops secondary to a foreign body reaction to cholesterol crystals and exhibits the accumulation of foreign body giant cells. It usually develops in the air-filled spaces of the middle ear region of the temporal bone; however, it has also been reported in the testis,⁴ tunica vaginalis,⁵⁻⁷ tunica albuginea,⁸ epididymis,⁹ and kidney.¹⁰ The clinical presentation is variable and may be encountered incidentally or present due to space occupying effects on surrounding structures.²

Although the exact pathogenesis of cholesterol granuloma is unknown, it is believed that a non-infectious local reaction induces ischemic necrosis, granulomatous reaction, and scarring. Blood containing cholesterol, fibrin, and hemosiderin extravasates from vessels that rupture due to the ischemic condition. The presence of cholesterol crystals results in a foreign body reaction involving giant inflammatory cells and granulomatous tissue finally develops.⁹⁻¹¹

There are very few cases of cholesterol granuloma of hydrocele sac reported in the literature. Farina LA et al⁵ reported a case of hydrocele and cholesterol granuloma of the tunica vaginalis simulating a tumor in echography. Recently, Ahmed N et al¹² reported a case of cholesterol granuloma of hydrocele sac mimicking testicular tumour and concluded that being a benign and curable lesion, early recognition and management is important, and because it can mimic a malignant neoplasm, surgical resection should be considered.

Jain I Lin et al⁴ reported a case of cholesterol granuloma of right testis emphasising the difference from lipogranuloma. Lowenthal SB and colleagues⁷ also reported a case of cholesterol granuloma of the tunica vaginalis simulating a testicular tumor. Yeung C et al¹ reported that cholesterol granuloma of the testis is indistinguishable from carcinoma of the testis. They concluded that if in doubt, surgical exploration and histopathology examination are absolutely necessary. Similarly, in our case excised tissue was sent for histopathological examination. Histologically cholesterol granuloma consists of extensive granulation tissue with dense masses of cholesterol clefts surrounded by multinucleated giant cells, hemosiderin-laden macrophages, lymphocytes, and plasma cells.^{2,3} This characteristic appearance has been

described to be diagnostic of cholesterol granuloma which was also seen in the present case.⁷ There are characteristic features identified on imaging that may reflect a cholesterol granuloma, however surgical excision is required to enable histopathological analysis and diagnostic confirmation. Management of cholesterol granuloma is largely directed by the location, size, and presentation of the lesion.^{2,3,12}

CONCLUSION

Cholesterol granuloma of the hydrocele sac is an extremely rare benign condition. They are a non-specific giant-cell reaction to the presence of a foreign body. They often remain asymptomatic and are discovered incidentally on imaging or intra-operatively. Though it is a benign condition, management of cholesterol granulomas is primarily conservative; however, if a malignancy cannot be completely ruled out, surgical exploration with pathological confirmation may be necessary.

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