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Histopathological Evaluation of Epididymal Filariasis: A Rare Case Report from Southern India

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Abstract

Epididymal filariasis is an uncommon manifestation of lymphatic filariasis that presents diagnostic challenges due to its rarity and similarity to other scrotal conditions. We present a detailed case report of epididymal filariasis from Southern India, emphasizing the histopathological findings that were crucial for diagnosis. A 53-year-old male presented with a painful scrotal mass, and subsequent investigations revealed an epididymal mass caused by *Wuchereria bancrofti*. Histopathological sections from epididymis showed dilated lymphatic vessel impacted with adult filarial worms having double uterus with surrounding tissue showing fibrosis and dilated congested blood vessels consistent with filarial infection. This case highlights the significance of histopathological workup in diagnosing unusual presentations of filariasis and the need for awareness in endemic regions.

Keywords: Epididymal Filariasis, Histopathology, Wuchereria bancrofti, Scrotal Mass, Southern India

Introduction

Epididymal filariasis is a rare form of lymphatic filariasis, primarily caused by *Wuchereria bancrofti*, and is often overlooked due to its atypical presentation. Lymphatic filariasis commonly affects the limbs and genitals, leading to complications such as hydrocele and elephantiasis, but involvement of the epididymis is less frequently documented. In Southern India, where lymphatic filariasis is endemic, cases of epididymal involvement are uncommon and present diagnostic challenges. Histopathological examination is pivotal in confirming the diagnosis and differentiating it from other scrotal conditions. This case report provides insights into the histopathological features of epididymal filariasis and emphasizes the importance of histological evaluation in rare cases.

Case Report

Patient Information: A 53-year-old male from a rural area in Southern India presented with a six-month history of progressive scrotal swelling and discomfort. The patient reported no history of trauma or recent infections but noted intermittent fever and pain in the affected area.

Clinical Examination: On examination, diffuse scrotal swelling measuring 15X10cm, firm to soft in consistency. Right testis not palpable with cord structures inflamed. Fluctuation test and trans illumination test was positive on the left side. Clinical diagnosis was Right sided Pyocele with left sided Hydrocele. The patient was afebrile with no systemic symptoms.

Diagnostic Workup:

- **Ultrasound Scrotum:** The ultrasound revealed gross left sided Hydrocele with right sided Funiculitis and Epididymitis with gross right side pyocele.
- **Surgical intervention:** Right orchidectomy was performed and tissue was sent for histopathological examination.
- **Histopathology:**

  Gross findings: Single irregular grey white to grey brown soft tissue measuring 7X4X2.5cm.Cut section showed Grey brown to grey white areas. String test-Negative. Epididymis measuring 2X2cm and nodular grey white areas was noted. Sac was measuring 4X2cm.(figure 1)

  Microscopy: Section studied from testis showed seminiferous tubules displaying spermatogenesis. Surrounding tissue showed focal fibrosis and hyalinised seminiferous tubules. Section from epididymis showed dilated lymphatic vessel impacted with adult filarial worms having double uterus. Surrounding tissue showed fibrosis and dilated congested blood vessels. Section from hydrocele sac showed fibro collagenous tissue with areas of necrosis and dilated congested blood vessels. (figure 2 and figure 3)

Discussion

The histopathological evaluation of an adult filarial worm found in the epididymis presents a unique case that underscores the complexity of parasitic infections in human tissues. This case, notable for the presence of a dead adult filarial worm with distinct double uteri, offers valuable insights into its microscopic morphology and potential implications for human health.

Microscopic Features of the Adult Filarial Worm

Upon microscopic examination, the adult filarial worm exhibited characteristic features consistent with the genus *Wuchereria* or *Brugia*. The elongated, cylindrical body of the worm was evident, with a well-defined outer cuticle indicative of its robust nature (Babu et al., 2017). The cuticle serves as a protective barrier, helping the parasite withstand the host's immune responses.

One of the most striking features observed was the presence of double uteri, a defining characteristic of female filarial worms. Each uterine structure appeared as a tubular formation running longitudinally along the body, a morphology that reflects the reproductive adaptations of these parasites (Hasegawa et al., 2021). This anatomical feature is critical for the worm's

reproductive capacity, facilitating the development and release of microfilariae into the host's circulatory system.

Degenerative Changes

While the structural integrity of the cuticle and muscular layers was largely preserved, the examination revealed signs of degeneration within the worm. Vacuolation of the cytoplasm and loss of cellular organization were noted, suggesting that the worm had undergone necrosis, likely due to host immune responses or metabolic failure post-mortem (Kumar et al., 2019). These degenerative changes are common in dead parasites and provide important clues regarding the life cycle of filarial species.

Clinical Relevance

The presence of a dead adult filarial worm in the epididymis has significant clinical implications. This rare finding emphasizes the necessity for clinicians to consider filarial infections when diagnosing scrotal or epididymal pathologies, particularly in endemic areas (Raghavan et al., 2020). Understanding the microscopic features, including the unique anatomy of the double uteri, can aid pathologists in accurate identification and diagnosis.

Conclusion

This case highlights the importance of recognizing histopathological characteristics of filarial worms in human tissues. The identification of a dead adult worm with double uteri not only enriches the existing knowledge of filarial morphology but also underscores the need for increased awareness and further research into the implications of such infections on reproductive health.

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Summary

This case report demonstrates the significance of histopathological evaluation in diagnosing epididymal filariasis, a rare but important manifestation of lymphatic filariasis. This case underscores the importance of considering filariasis in the differential diagnosis of scrotal masses, particularly in endemic regions, and highlights the role of histopathology in managing such rare conditions.

Figure 1: Gross image: Cut section showing Grey brown to grey white areas

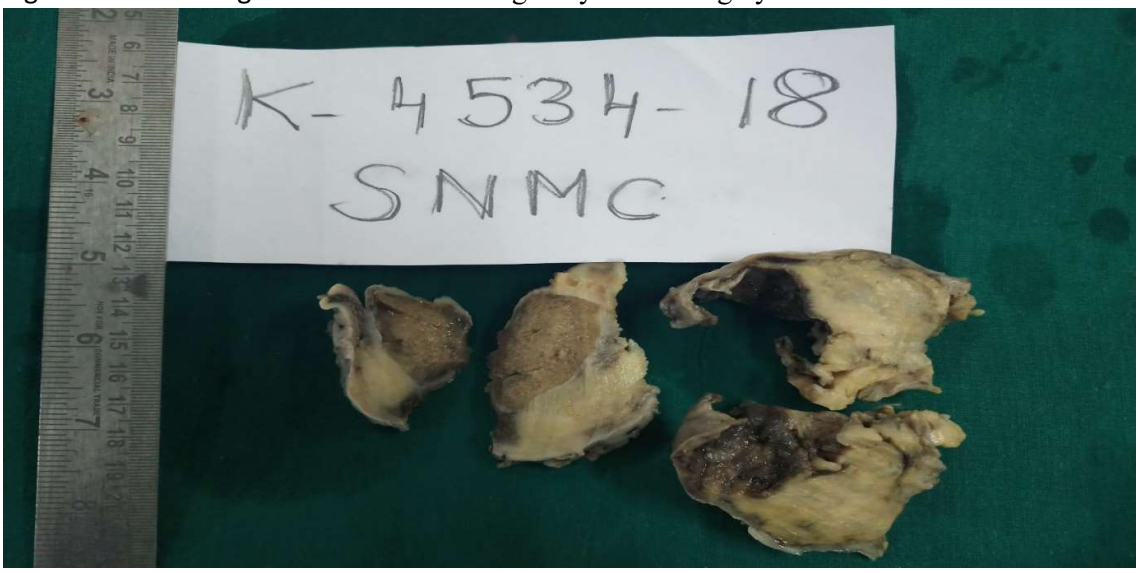

Figure 2 : Section from epididymis showing dilated lymphatic vessel impacted with adult filarial worms having double uterus.

Figure 3: Surrounding tissue showing fibrosis and dilated congested blood vessels with dilated lymphatic vessel impacted with adult filarial worms having double uterus.