Multiple Scrotal Cysts Composed of Combined Syringomas and Epidermal Inclusion Cysts: A Previously Unreported Association

My Diep BS, MS[1] and David Cassarino PhD, MD[2]
1 Western University of Health Sciences, College of Osteopathic Medicine of the Pacific, Pomona, California, USA
2 Department of Pathology, Southern California Permanente Medical Group, Sunset Medical Center, Los Angeles, California, USA

Case Report

A 16-year-old male patient presented to the clinic complaining of numerous "pimples" on his scrotum for about 2 years. The patient reported being sexually active and always used condoms. The patient denied fever and dysuria. On physical examination, the patient was well-developed, well-nourished and in no acute distress. His respiratory effort was normal, and abdomen was soft to palpation. In the genitourinary examination, the patients had multiple apparent cysts on the scrotum, as well as some lesions seen on the penile shaft. There appeared to be at least 20 cysts in total which had grown in size from onset to 4 mm. Twelve biopsies were attained over the course of 3 visits, all of which showed EICs and/or syringomas, in which most samples demonstrated both lesions, which were closely associated histologically (Figures 1A-C).

Discussion

This is a very rare and interesting case, as an association between these common lesions has not been previously reported. Both syringomas and EICs are common benign lesions, but have differing epidemiology, characterizations, and treatment efficacies.

Syringomas present most often in women as smaller multiple lesions, while EICs are more commonly seen in men as larger single or multiple lesions [1]. The gold standard to diagnose syringoma and EIC is tissue biopsy with hematoxylin and eosin staining for evaluation. The histopathological features of syringomas are very distinct and confirmatory, showing a proliferation of tubular and glandular eccrine structures surrounded by fibrous stroma, with epithelial outgrowths that create a tadpole-like appearance [2], [3], [4]. EIC histologically presents as stratified squamous epithelium present in the dermis. The occluded epithelium mimics the epidermis, carrying the same cytokeratin profiles [5], [6]. Within the cyst are keratin flecks and sebaceous secretions [7]. These distinguishing features of syringoma and EIC were both present on the biopsy samples of our patient.

The pathophysiology of EIC and Syringoma have not been completely elucidated, but there are several theories that speculate the cause of these lesions. One possible mechanism that links EIC and syringoma is the involvement of the eccrine ducts. EICs can form in a variety of pathways, one of can be from trauma penetrating the eccrine sweat ducts [8]. Syringoma has also been shown to be related to eccrine ducts from previous studies using anti-keratin antibodies stains. These stains suggested that syringoma developed from the basal layer of the epidermis and consists of eccrine secretory and ductal structures. Further investigation of how eccrine ducts are involved in that pathology of EIC and syringoma can potentially lead to further understanding of their potential association.

There are different treatments for EIC and syringoma, and each yield different efficacies. Syringoma has no reliable treatment, with most carrying the risk of recurrence, scarring, and dyspigmentation. However, EICs have a gold standard treatment that is effective for most patients, which is complete surgical excision with little rates of recurrence. In the case of our patient, the probability of recurrence is unknown since both syringomas and EICs are present and their response to treatment is contrasting. Therefore, continual follow-up with this patient may yield insight to the relationship of EIC and syringoma, and evaluation of effective treatments for both.

Histopathological Findings

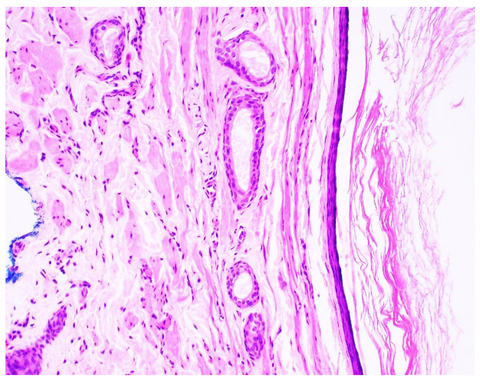

Figure 1A. Low power image of an EIC with a proliferation of small, bland ductal structures in the adjacent dermis, consistent with syringoma.

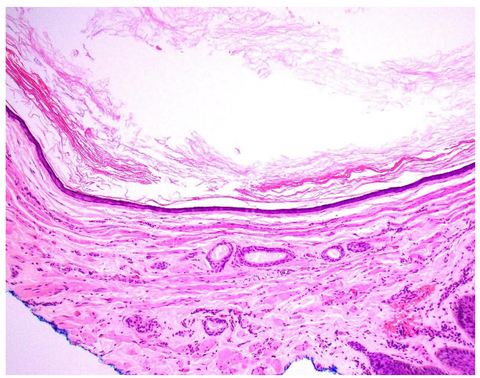

Figure 1B. Higher magnification of the cyst lining and adjacent syringoma.

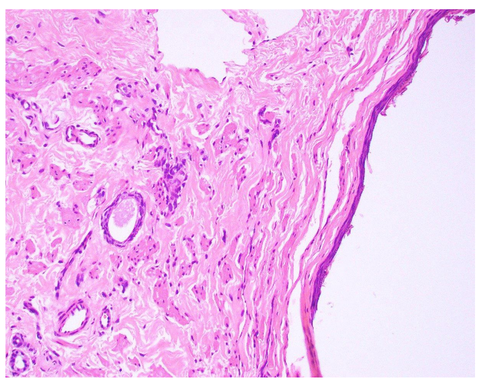

Figure 1C. Another biopsy showing both EIC and an associated syringoma.

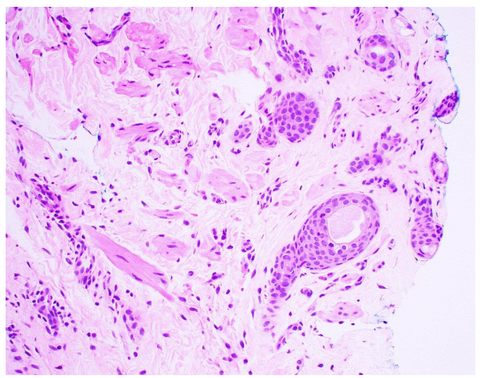

Figure 1D. High magnification of one of the syringomas, with the typical pattern of benign eccrine ductal structures lined by small, clear cells, and showing a focal tadpole-like extension from one of the ducts.

Conclusion

The presence of multiple syringomas and EICs associated together on the scrotum of our patient is a unique case which has not been previously reported, despite both of these being very common lesions. Upon histopathological examination, syringomas and EICs each have distinctive characteristics that allow them to be easily diagnosed. Although the causation behind both are still unknown, traumatic involvement of the eccrine ducts has been a common suggested factor in syringomas and EICs. Thus, continued research on the influence of eccrine ducts may allow for understanding the potential association between syringomas and EICs. Furthermore, EICs and syringomas react differently to treatment and have contrasting recurrence rates, which poses a problem for identifying appropriate treatments and running the risk of scarring and recurrence. The lack of literature on their combined presentation is also challenging. Hence, more records of such clinical presentation can improve our understanding of EIC and syringoma individually, and their rare association together.

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