Original Article

Brief Overview About Syringoma

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Abstract

Background: Syringomas are benign skin-adnexal tumors of eccrine origin that present as small dome-shaped papules and often occur in a periocular distribution that may compromise the facial esthetic appearance. It can also be found on the neck, abdomen, or external genitalia. The term “syringoma” comes from the Greek word syrinx, which means tube. According to their histopathological characteristics, they are benign adnexal tumors arising from the eccrine ducts. The proliferation of cells in the lumen of the duct results in the development of spiral structures in which sweat can no longer move freely or come out to the surface of the skin. Syringomas may sometimes be pruritic. Summer season or high temperature is the most common aggravating factor. The report that topical atropine is effective in the treatment of syringoma supports the hypothesis that high temperature-induced sweat secretion may worsen the symptom. Atropine is an anticholinergic drug that inhibits sweating. The most frequent clinical differential diagnosis of localized syringoma is xanthoma. This could be due to the similar localization of periocular syringoma with xanthelasma. Plane warts are the most common clinical differential diagnosis of generalized syringoma. The definite diagnosis of syringoma can be made on histopathological examination. Haematoxylin-eosin stain (H and E) shows multiple small ducts within the dermis. The ducts are lined by two rows of epithelial cells with comma-like tail or tadpole appearance

Keywords: Syringoma

INTRODUCTION

Syringomas are benign skin-adnexal tumors of eccrine origin that present as small dome-shaped papules and often occur in a periocular distribution that may compromise the facial esthetic appearance. It can also be found on the neck, abdomen, or external genitalia. **(1)**

In one study in the Spanish population by **Soler-Carrillo et al.**, **(2)**, 24 of 27 cases were women. A similar study of 61 syringoma patients in the Korean population by **Lee et al., (3)** revealed female patients were more frequent (53 females and 8 males; ratio 6.6:1).

Another study of 34 cases by **Ghanadan and Khosravi (4)** showed 97% of patients were female and attributed the exaggerated female: male ratio to the more frequent medical care seeking due to cosmetic reasons in women.

Syringoma was first described in **1872** under the name "lymphangioma tuberosum multiplex". Later, **Jacquet** and **Darier (5)** described the eruptive form. **Friedman and Butler (6)** claimed that there are four principal clinical variants of syringoma as follows: a Localized form, a generalized form that includes multiple and eruptive syringoma, a familial form and a form associated with Down's syndrome (DS).

Clinically, syringomas appear as multiple, small, firm, skin-colored or slightly yellowish papules, 1-3mm in diameter, symmetrically distributed and usually asymptomatic. Eruptive syringoma is a rare variant that typically develops on the anterior surfaces of the neck, chest, abdomen, pubic area, and face**.** Eruptive syringoma is as frequent in the prepubertal as in the postpubertal age and it must be considered in the differential diagnosis of papular dermatosis at any age. **(2)**

Syringoma may be familial. **Draznin, (7)** reported a 54-year-old syringoma patient whose father had similar lesions around his eyes and sister has similar, but fewer lesions. 11.5% of patients had positive family history of syringoma in the study by **Lee et al., (3)**.

The incidence of syringomas in DS has been reported to be approximately 30 times greater than in the general population. Lesions were described in 18.5% of 200 institutionalized DS patients, with a prevalence of 26% among female and 13% among male patients **(8).**

Schepis et al., (9) studied 30 males and 31 female patients with DS and found palpebral syringomas in 13 females and 1 male, confirming the high incidence of these lesions in DS and a clear female preponderance.

Syringomas may sometimes be pruritic. Summer season or high temperature is the most common aggravating factor. The report

that topical atropine is effective in the treatment of syringoma supports the hypothesis that high temperature-induced sweat secretion may worsen the symptom. Atropine is an anticholinergic drug that inhibits sweating. The most frequent clinical differential diagnosis of localized syringoma is xanthoma. This could be due to the similar localization of periocular syringoma with xanthelasma. Plane warts are the most common clinical differential diagnosis of generalized syringoma **(4).**

The definite diagnosis of syringoma can be made on histopathological examination. Haematoxylin-eosin stain (H and E) shows multiple small ducts within the dermis. The ducts are lined by two rows of epithelial cells with comma-like tail or tadpole appearance (**4).** Ductal lumina are filled with an amorphous, Periodic-Acid-Schiff (PAS) positive material. Histologically, syringomas react strongly with S-100, the carcinoembryonic antigen, epithelial membrane antigen, lysozymes, and antibodies to the breast cystic fluid protein GCDFP15 and GCDFP24. Eccrine gland enzymes, such as succinic dehydrogenase, phosphorylase, and leucine aminopeptidase predominate in syringoma cells **(10).**

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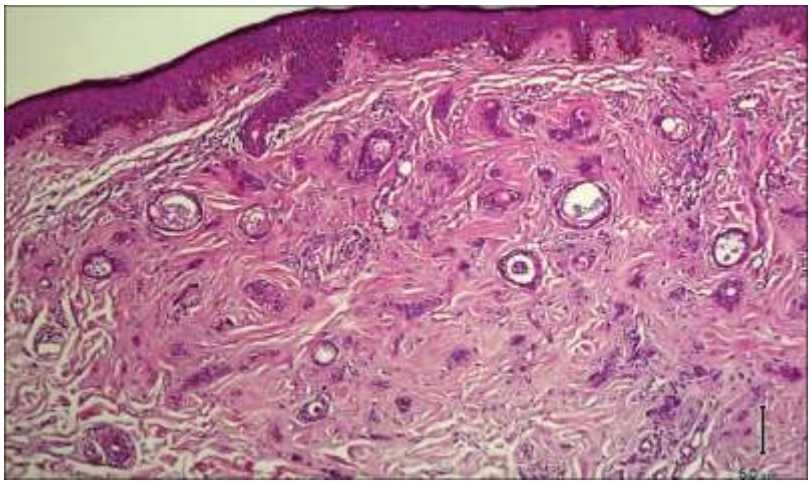

Figure 1: Eccrine comma-shaped and tadpole strands embedded in fibrous stroma (H and E, ×10). **(4).**

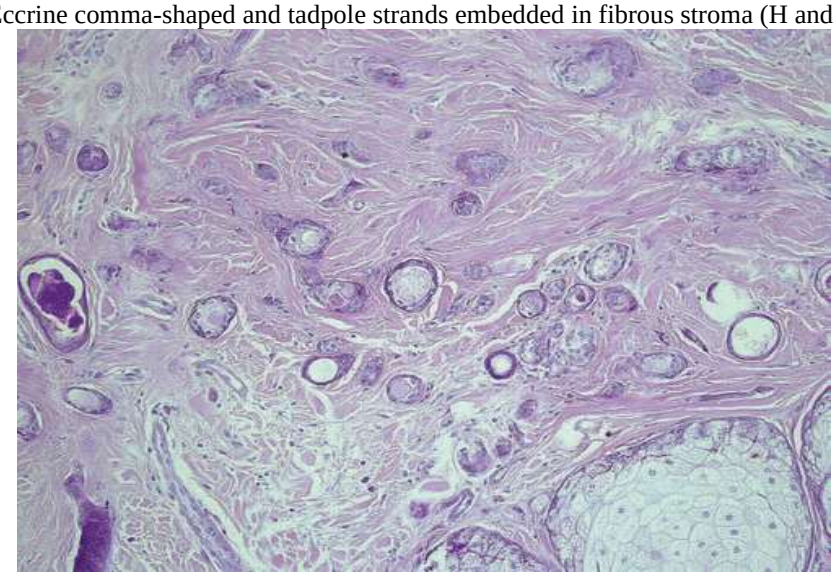

Figure 2: PAS-positive staining of amorphous material within the cystic luminas (PAS stain, ×200). **(11)**

Clear cell syringoma is a rare variant of syringoma which is clinically indistinguishable from common variants and is strongly associated with diabetes mellitus. It results from glycogen deposits in syringoma because of phosphorylase deficiency which occurs in diabetic patients**.** However, in a previous study 29 out of 34 syringoma patients showed clear cell changes and none of them were diabetic **(4).**

Treatment:

Syringomas are harmless and benign, but of an aesthetically- disfiguring nature, particularly syringomas of the face and can lead to poor self-esteem. Regression of lesions has been observed, but is exceptional **(11)**

Patients always seek for effective and safe treatment in order to obtain aesthetic improvement. Since syringomas are embedded in the papillary and upper reticular dermis, the treatment method used at least must reach this depth, otherwise, recurrences are inevitable **(11)**.

Kang et al. (12) reported that the depth of periorbital syringomas varies, on average, from 0.70±0.20 mm and 1.06±0.34 mm, respectively, confirming that they are located in the dermis, but quite deep, and therefore treatment should be selective and should avoid injury to adjacent tissues.

Removal of syringoma has been problematic for both doctors and patients. The main risks are recurrence, depressed scars, and postinflammatory erythema and hyperpigmentation. In order to avoid these complications, many patients and physicians alike elected not to treat them. In the literature, there are multiple treatment options with varying degrees of success, but a little is known about the effectiveness of the different proposals. Treatment modalities, such as topical retinoids, topical atropine, chemical peelings, electrodessication, surgical excision, electrocautery, cryotherapy, laser ablation, and combined therapies have been attempted. Systematic approaches to all these therapeutic options are still lacking. **(11)**

1- Surgical excision

In the early 1980s, the only reliable treatment of such lesions was surgical excision which was rarely indicated in young patients with periorbital syringomas. Tightness of the skin and the potential for scarring in this area has been the limiting factor for such surgical treatment and patients are often left untreated. **(13)**.

Bagatin et al. (14) reported the experience in the surgical treatment of 38 patients using excision with Castroviejo scissors and healing by second intention. Thirty-six cases were described with excellent and good results, but 12 cases had hypochromia, 1 had a depressed scar, and 1 had a hypertrophic scar. Even if this method has shown good results, it would be important to evaluate the Fitzpatrick skin phototype due to the risk of hyperpigmentation which can appear in larger phototypes.

2- Electrocautery

Electrocautery is an effective, safe, and inexpensive technique for treating periorbital syringomas. The technique is in danger of being abandoned in the dash for new, high-tech, "state-of-the-art" treatment modalities. The technique requires attention to detail and understanding of the methodology and should not be undertaken on eyelid skin until the operator is competent in its use **(15).**

3- Topical atropine

Eccrine hidrocystomas have been treated successfully with oral and topical anticholinergic drugs like atropine, achieving the transitory clearing of lesions and alleviation of symptoms. Given that syringomas have a similar origin to eccrine hidrocystomas and that atropine inhibits sweat secretion, atropine can be used to treat pruritic eruptive syringoma. Atropine competitively blocks the effects of acetylcholine, including sweating. Topical atropine (1%) in aqueous solution is applied once daily (approximately 0.75 mL/day, equivalent to 7.5 mg sulfate of atropine). It is described to achieve complete alleviation of pruritis and size reduction of lesions without local or systemic side effects **(16).**

4- Retinoids

Retinoids are structurally related to vitamin A. They are classified into three generations based on their molecular structures. Inside the body, retinoids bind to several classes of proteins including retinoid-binding proteins and retinoid nuclear receptors. Retinoids modify cell growth, differentiation, and apoptosis, possess immunomodulatory and anti-tumor properties, due to their influence upon DNA transcription. Oral isotretinoin was reported as a successful treatment in two female patients with multiple syringomas who were treated with cumulative doses of 9 and 11 g isotretinoin respectively, over a 5–6-month period with marked improvement regarding reduction of number and size and improvement of texture **(17).**

A 57-year-old man with eruptive syringomas was also treated with oral isotretinoin (5 mg/day, alternate days), without any improvement. **Papageorgiou et al. (18)** reported a case of eruptive syringoma in a 22-year-old man of Egyptian origin with unsatisfactory response to low-dose oral isotretinoin (10 mg/day) over a 5-month period.

It was reported that treatment of generalized eruptive syringoma with orally administered acitretin for 4 months, unfortunately showing a poor clinical response.

5- Intralesional electrodesiccation

In 1997, Karam and Benedetto used intralesional electrodesiccation in the treatment of periocular syringomas in 20 patients and reported good results. Syringomas were treated with a fine epilating needle electrode that was inserted into the center of the syringoma, as deeply as the reticular dermis causing electrodesiccation.

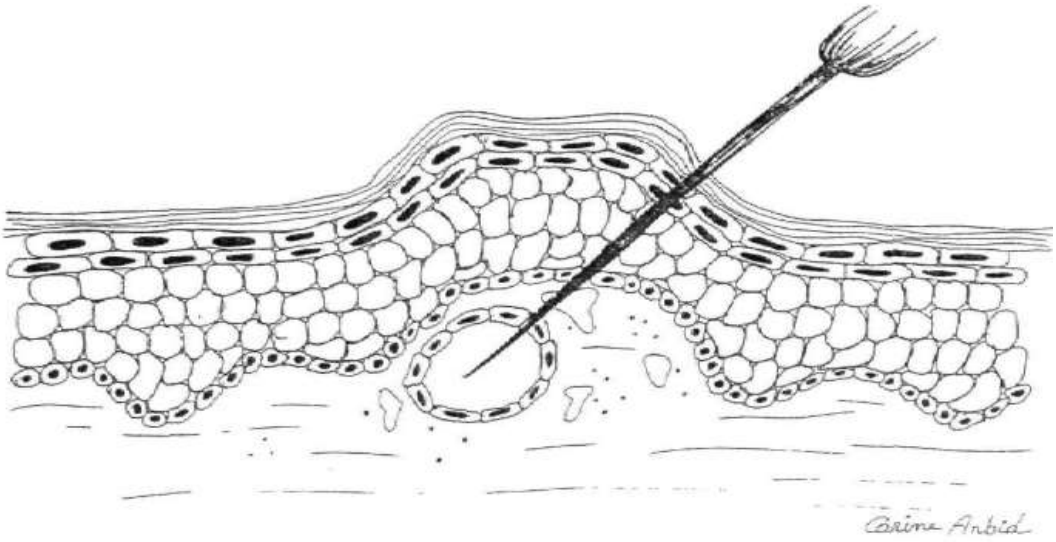

Figure 3: Diagram of needle entering syringoma within the dermis**. (19**)

6- Intralesional radiofrequency ablation

The radiofrequency ablation technique is an approach in which the electromagnetic waves are transmitted via an electrode to vibrate the molecules of the tissues with which it comes into contact. The electrical resistance of human tissue helps convert this electromagnetic energy into molecular energy, which causes denaturation of intracellular and extracellular proteins resulting in coagulation effects. Because only the contacted tissues are ablated, virtually little harm is done to adjacent tissues that are not in contact with the electrode. An advantage of the intralesional radiofrequency ablation method is that each deep-seated lesion can be removed effectively, and the unharmed adjacent normal tissues are helpful in achieving a good recovery. A drawback of the method is that due to the necessity of inserting the needle into each lesion, each session takes a long time to achieve complete removal of the tumor. **(20).**

Al Aradi (21) carried out a pilot study of the efficacy of low-voltage electrocoagulation in 20 patients with phototype IV and V, placing the electrode superficially in each syringoma, with moderate clinical improvement after the third session.

Hong et al. (22) presented 2 patients with periocular syringomas successfully treated by intralesional insulated needless, which are insulated at the point of epidermal contact. This way allows selective destruction of dermal lesions without epidermal damage. In another study of 64 patients with periocular syringomas treated by intralesional radiofrequency ablation, the majority had good or excellent cosmetic results **(20).**

7- Laser therapy

Laser therapy is a minimally invasive approach that can be used as an alternative to conventional therapies. Several laser systems have been suggested for removal of syringoma, including ablative and non-ablative lasers **(23)**

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