

Use of Full-Thickness Graft of the Inguinal Region for Scalp Defect Secondary to Trichilemmal Cyst

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Abstract

Introduction: Trichilemmal cysts, also known as pilar cysts, are benign intradermal or subcutaneous lesions that derive from the outer root sheath of the hair follicle. They occur in 5-10% of the population, show a predominance of females, and may have an autosomal dominant inheritance pattern or occur sporadically.

They appear more frequently on the scalp in 90% of cases and the rest may appear on the face, trunk, groin and extremities less frequently. Histopathologically, trichilemmal cysts contain abrupt keratinization and broad eosinophilic cytoplasm without a granular layer.

Ultrasound is the study of choice with a sensitivity of 99% and a specificity of 100%. The treatment of choice is surgical, and complete resection of the cyst is performed, generally with a good prognosis.

Objective: Presentation of a case on the treatment used for a trichilemmal cyst at the Ticomán General Hospital of the Ministry of Health of Mexico City to the entire surgical community.

Results: A 63-year-old female patient presented to the general surgery outpatient clinic at the Ticomán General Hospital of the Ministry of Health, who presented with a progressive increase in volume of 10 years of evolution in the posterior parietal region with slight pain on palpation. On questioning he does not present any important antecedent.

Physical examination with vital signs within normal parameters, conscious, oriented, at the level of the scalp with the presence of an increase in volume in the posterior parietal region of approximately 7 cm, with well-defined borders, slightly mobile, not adhering to deep planes, without presenting changes in color, slightly painful to palpation and pressure, rest of the normal examination.

A wedge incision was made on the cyst with complete resection of the cyst of 5 x 5 cm, having exposure of the calota, leaving a defect of approximately 8 cm long with a depth of 1.5 cm, with inability for the primary closure of the defect, so it was decided to take a graft of full thickness of the inguinal region, the graft was fixed with nylon 4-0 without any complication during the procedure, The hemostasis of the tissue is verified, as well as the capillary filling of the graft, being adequate during the immediate postoperative period.

A surgical specimen was sent to pathology reporting a solid cystic mass, with well-defined borders, non-infiltrating, squamous epithelium that presented trichilemmal-type keratinization.

With follow-up and management through the outpatient clinic at 7, 14, 21 days, one month and 3 months.

Discussion: Pinkus in 1968 described the portion of the external root sheath between the pons and the opening of the sebaceous duct as the trichilemmal comparing it to the neurilemmal sheath (Schwann's sheath) that covers the nerves. The trichilemmal is keratinized without the formation of keratohyalin granules and the individual cells increase in volume and vertical diameter instead of flattening as they do in the epidermis. Cysts with a lining that is keratinized in the same way as trichilemmal are called trichilemmal cysts.

They appear most frequently on the scalp in 90% of cases, the rest may appear on the face, trunk, groin and extremities less frequently. Trichilemmoma cysts are present in both non-neoplastic and neoplastic forms, where the latter is known as proliferating trichilemmal cyst which is a rare neoplasm, occurs more frequently in older women and corresponds to 0.1 to 3% of benign skin tumors.

Both trichilemmal cysts and proliferating trichilemmal cysts have a trichilemmal type of keratinization and can occur simultaneously.

Although computed tomography and magnetic resonance imaging have been used for the study of cysts, ultrasound is the study of choice with a sensitivity close to 99% and a specificity of 100%.

The treatment of choice for CTs is usually surgical, and complete resection is performed with margins of 1 cm. Your prognosis is good when the resection is complete. Among the main complications that can occur after cyst resection is bleeding, pain, infection or recurrence of the cyst. In the case reported in this case report, one of the expected complications was graft rejection or necrosis.

Conclusion: Trichilemmal cysts are benign lesions and can rarely transform into malignancies. The head and neck are the most common sites that are affected. There are no established guidelines for the treatment of trichilemmal cysts.

Keywords: *Graft; Cyst; Scalp; Trichilemmal*

Introduction

Trichilemmal cysts, also known as pillar cysts, are benign intradermal or subcutaneous lesions that derive from the outer root sheath of the hair follicle. They occur in 5 - 10% of the population, show a predominance of females, and may have an autosomal dominant inheritance pattern or occur sporadically.

Trichilemmal cysts appear more frequently in places where there are dense hair follicles such as the scalp in 90% of cases, the rest can appear on the face, trunk, groin and extremities less frequently. Trichilemmal cysts are present in both non-neoplastic and neoplastic forms.

Trichilemmal cyst is the second most common cyst of skin appendages after epidermoid cyst. Clinically they are indistinguishable from epidermoid cysts, except for their frequency and distribution. Histopathologically, trichilemmal cysts contain abrupt keratinization and broad eosinophilic cytoplasm without a granular layer, while epidermoid cysts include a granular layer and keratin lamellae within the lumen.

Soft tissue ultrasound is the study of choice for this pathology, with a sensitivity of 99% and a specificity of 100%. The treatment of choice for cysts is usually surgical, and complete resection is performed with margins of 1 cm. Your prognosis is good when the resection is complete.

Objective of the Study

Presentation of a case on the treatment used for a trichilemmal cyst at the Ticomán General Hospital of the Ministry of Health of Mexico City to the entire surgical community.

Case Report

A 63-year-old female patient presented to the general surgery outpatient clinic at the Ticomán General Hospital of the Ministry of Health, who presented with a progressive increase in volume of 10 years of evolution in the posterior parietal region with slight pain on palpation, without presenting more added symptoms. On questioning he does not present any important antecedent.

On physical examination, he found vital signs within normal parameters, HR 67 bpm, FR 18 rpm, BP 125/78, Temperature 36.7°C; conscious, cooperatively oriented, skull without endostosis or exostosis, at the scalp level with the presence of an increase in volume in the posterior parietal region of approximately 7 cm, with well-defined borders, slightly mobile, not adhered to deep planes, without changes in coloration, slightly painful to palpation and pressure, normoreflexic pupils, pulmonary fields with adequate air entry and exit, well ventilated, rhythmic heart sounds of good tone and intensity, no added phenomena, globose abdomen at the expense of adipose panniculus, soft, depressible, not painful to palpation, peristalsis present, no evidence of peritoneal irritation, rest of the examination normal. Having as a suspicion he diagnoses a probable sebaceous cyst.

It was decided to manage it surgically on a scheduled basis to perform excision of the cyst, and in the operating room, asepsis and antisepsis of the head were performed, sterile drapes were placed, hair was shaved where the cyst was located, and a wedge incision was made on the cyst with complete resection of the cyst of 5 x 5 cm having exposure of the shell, leaving a defect approximately 8 cm long with a depth of 1.5 cm, having inability for the primary closure of the defect, so it is decided to take a graft of total thickness of the inguinal region of the same size of the defect, an initial point is given with nylon 4-0 in the center of the graft towards the shell for fixation of the graft and then simple cardinal points are given with nylon 4-0. For fixation and approximation of the graft towards the edges of the incision, the excess tissue of the graft is removed and fixed again with nylon 4-0, the hemostasis of the tissue is verified, as well as the capillary filling of the graft, being adequate during the immediate postoperative period (Figure 1). Vaseline gauze is placed and the graft is covered, ending the procedure. And the patient is discharged to the outpatient clinic 24 hours after surgery for surveillance and management. A surgical specimen was sent to pathology reporting a solid cystic mass, with well-defined borders, non-infiltrating, squamous epithelium that presented trichilemmal keratinization, giving as a histological diagnosis a trichilemmal cyst.

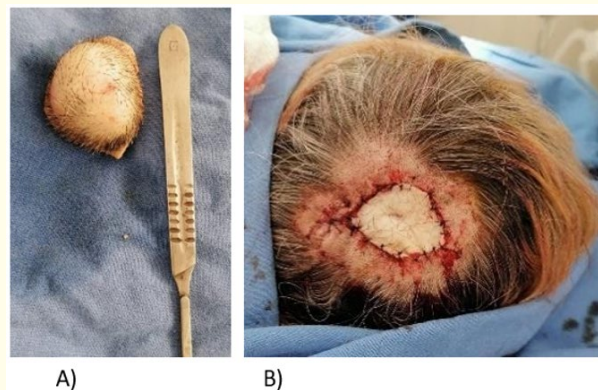


Figure 1: A) Complete resection of the cyst. B) Placement and evaluation of the graft during the immediate postoperative period.

Follow-up and management is given through the outpatient clinic with antibiotics, dressings and pirfenidone gel. Finding the graft with good tissue integration, good coloration, clean, adequate capillary filling, without evidence of necrosis, continuous management is given, and surveillance is given at 7, 14, 21 days, one month and 3 months (Figure 2). Currently still under follow-up by our service with significant improvement.

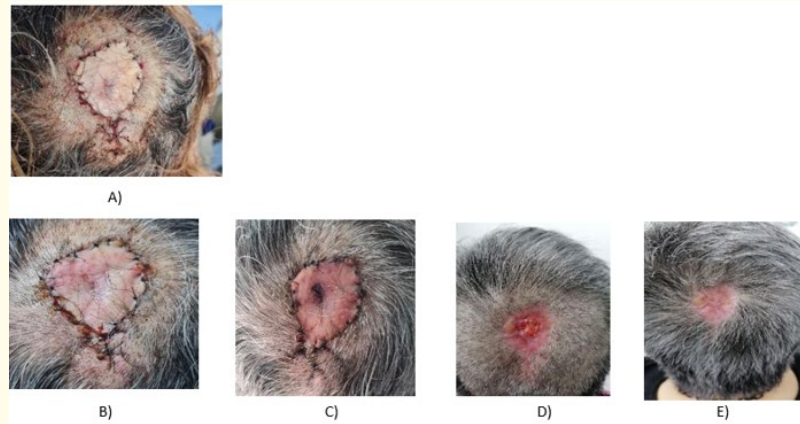


Figure 2: Graft monitoring and surveillance. A) 7 days post-surgery. B) 14 days post-surgery. C) 21 days post-surgery. D) 1 month post-surgical and, E) 3 months post-surgical.

Discussion

The term tricholema was introduced by Headington and French in 1962, when they described a tumor of the outer root sheath as tricholema [1]. Pinkus in 1968 described the portion of the outer root sheath between the pons and the opening of the sebaceous duct as the trichilemmal comparing it to the neurilemmal sheath (Schwann's sheath) covering the nerves [2]. Trichilemmal is keratinized without the formation of keratohyalin granules and the individual cells increase in vertical volume and diameter instead of flattening as they do in the epidermis [3]. The human external root sheath does not keratinize while covering the internal root sheath, but it does in the follicular isthmus of the anagen hairs and in the sac surrounding the catagen hairs. Keratinization is done in these two situations because the internal root sheath has disappeared. Cysts with a lining that is keratinized in the same way as trichilemmal are called trichilemmal cysts [4].

Trichilemmal cysts (CTs), also known as pillar cysts, are benign intradermal or subcutaneous lesions that derive from the outer root sheath of the hair follicle. They occur in 5 - 10% of the population, show a predominance of females, and may have an autosomal dominant inheritance pattern or occur sporadically [5,6]. CTs appear with a higher frequency in sites where there are dense hair follicles such as the scalp in 90% of cases, the rest may appear on the face, trunk, groin and extremities in less frequent. CTs are present in both non-neoplastic and neoplastic forms, where the latter is known as proliferating trichilemmal cyst (PTC) which is a rare neoplasm, occurs more frequently in older women and corresponds to 0.1 to 3% of benign skin tumors [7,8].

QT is the second most common cyst of skin appendages after the epidermoid cyst [8]. They are often described as benign; however, malignant transformation has also been reported [9].

Both QTs and QTPs have a trichilemmal type of keratinization and can occur simultaneously [10]. QTP usually appears as a solitary, slow-growing, exophytic lesion ranging from 2 cm to 25 cm in size, but can sometimes grow rapidly [8].

QTs are clinically indistinguishable from epidermoid cysts (ESCs), except for their frequency and distribution. Histopathologically, QTs contain abrupt keratinization and broad eosinophilic cytoplasm without a granular layer, whereas QEs include a granular layer and keratin lamellae within the lumen. Although QEs tend to rupture or become infected, however, these complications are rare with QTs [11].

Macroscopically, CTs are described as multinodular lesions, of soft consistency, located in the deep dermis and extending to subcutaneous cellular tissue. Its histological description is a solid-cystic mass, with well-defined borders, non-infiltrating, squamous epithelium that presents trichilemmal-type keratinization. Keratin deposits can calcify and generate a reaction with giant cells to a foreign body [12,13]. Microscopically it is described as epidermoid keratinization in its upper portion, and indistinguishable from an epidermoid cyst. Its lower portion presents a marked transition with trichilemmal keratinization. Trichilemmal corresponds to the outermost portion of the hair follicle [14].

Although computed tomography and magnetic resonance imaging have been used for the study of CTs, soft tissue ultrasound is the study of choice for this pathology because it is more accessible in hospital units and the low cost that this study represents, in addition to having a sensitivity close to 99% and a specificity of 100%. Most QTs are hypoechoic masses containing calcifications with posterior sound enhancement but no color Doppler signals [15].

The treatment of choice for CTs is usually surgical, and complete resection is performed with margins of 1 cm. Your prognosis is good when the resection is complete. Benign CTs are suitable for tumor enucleation. On the contrary, in cases of the presence of PTCT, treatment in addition to resection must be accompanied by radiotherapy or chemotherapy. Among the main complications that can occur after cyst resection is bleeding, pain, infection or recurrence of the cyst. In the case reported in this case report, one of the expected complications was graft rejection or necrosis.

Conclusion

Trichilemmal cysts are benign lesions and can rarely transform into malignancies. The head and neck are the most common sites that are affected.

In adnexal tumors, the clinical manifestations are generally not very orienting. Histopathology study is required for definitive diagnosis. There are no established guidelines for the treatment of CT and PTCT and the usefulness of preoperative imaging is controversial.

Bibliography

1. Headington IT and French AJ. "Primary neoplasms of the hair follicle". *Archives of Dermatology* 86 (1962): 430-441.
2. Pinkus H. "Static and dynamic histology and histochemistry of hair growth". In: *Biopathology of Pattern Alopecia*. Proceedings of the International Symposium held in Rapallo, Italy, July 28th (Ed. by A. Baccaredda-Boy, G. Moretti and I.R. Frey). Karger, Basel/New York: 69-81.
3. Maurer FR. "The epidermis and its descendants". Wilhelm Engelmann, Leipzig (1895).
4. Pinkus H. "'Sebaceous cysts' are trichilemmal cysts". *Archives of Dermatology* 99.5 (1969): 544-555.
5. Chang SJ, et al. "Proliferating trichilemmal cysts of the scalp on CT". *American Journal of Neuroradiology* 27.3 (2006): 712-714.
6. Leppard BJ, et al. "Hereditary trichilemmal cysts. Hereditary pilar cysts". *Clinical and Experimental Dermatology* 2.1 (1977): 23-32.
7. Ramaswamy AS, et al. "Morphological spectrum of pilar cysts". *North American Journal of Medicine and Science* 5.2 (2013): 124-128.

8. Amarillas ED and Metlich MA. "A large trichilemmal cyst of the scalp skin of the posterior region of the skull. Report of a clinical case". *Revista Mexicana de Cirugía Bucal y Maxilofacial* 8 (2012): 59-63.
9. Mathis ED, et al. "Malignant proliferating trichilemmal tumor". *American Journal of Clinical Oncology* 24.4 (2001): 351-353.
10. Requena L, et al. "Proliferating trichilemmal tumor". In: WHO Classification of Skin Tumors 4. Lyon, France: IARC Press (2018): 196-197.
11. Balasundaram P, et al. "Evolution of epidermoid cyst into dermoid cyst: embryological explanation and radiological-pathological correlation". *Neuroradiology Journal* 32.2 (2019): 92-97.
12. Sáez E, et al. "Proliferating trichilemmal tumor: a case report and literature review". *Rev Otorhinolaryngol Cir Head Neck* 78 (2018): 305-308.
13. Kang SJ, et al. "Proliferating trichilemmal cyst of the eyelid". *American Journal of Ophthalmology* 143.6 (2007): 1065-1067.
14. Brownstein M. "Hybrid cyst: a combined epidermoid and trichilemmal cyst". *Journal of the American Academy of Dermatology* 9.6 (1983): 872-875.
15. Wortsman X, et al. "Guidelines for performing dermatologic ultrasound examinations by the DERMUS Group". *Journal of Ultrasound in Medicine* 35.3 (2016): 577-580.

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