Surgical management of infected sebaceous cyst in cheek: A case report

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Abstract
The term sebaceous cyst is a term which denotes the subcutaneous cyst occurring due to obstruction of pilosebaceous ductal opening. The swelling is asymptomatic soft and cystic and fluctuant when not infected. The cyst is usually lined by an epithelium and filled with keratin, may also contain dermal appendages from the cystic wall. Histologically this cyst is considered to be an Epithelial cyst. The types of Epithelial cyst are Epidermoid cysts, pillar cysts, Dermoid cyst and Steatocystoma. When the cystic lining contain only epidermis cyst is called as epidermoid cyst and when cyst contain multiple dermal adnexae from the cystic wall, the cyst is called Dermoid cyst. The pillar cyst consist of epithelial lining without granular cell layer resembling the follicular epithelium containing mixture of keratin and lipids. The Steatocystoma are the true sebaceous cysts which consist of walls resemble the duct of sebaceous gland. The treatment modalities of these epidermal inclusion cysts are conventional elliptical excision, minimal excision, punch incision, application of solcoderm. Here we report a case of infected sebaceous cyst which was managed by conventional elliptical excision which resulted in hardly noticeable scar.

Keywords: Surgical management, infected sebaceous cyst, Dermoid cyst

Introduction
The sebaceous glands are spread out in the entire body surface area. The sebaceous cyst occurs due to the blockage of the duct of sebaceous gland predominantly occurring in the middle aged group. The other causes of sebaceous cyst are the developmental defect of the sebaceous duct and the traumatic implantation of the epithelium beneath the skin [1]. The predominant site of occurrence is the scalp followed by the face. Clinically a sebaceous cyst is an asymptomatic soft fluctuant swelling with the surface of the swelling containing a punctum [2]. Punctum is a black coloured (necrosed) part of the skin over the swelling which is attached to the underlying cyst. Once infected the cyst is painful firm in consistency and can undergo spontaneous rupture to discharge the content into the dermis which is difficult to retrieve and may lead to heavy scar [3].

Case report
A 45 year old male patient reported with the complaints swelling in the mid face region for the past 15 years which turned painful in last 2 weeks. Patient no previous medical history and neither the patient nor his family members had similar swelling elsewhere in the body. On inspection the swelling was round in shape and of 2 cm in diameter extending anterior 2 cm away from corner of the mouth and posteriorly 8 cm anterior to the tragus of the ear. The skin over the swelling had central region of atrophy-a punctum like appearance (Figure 1).

On palpation the swelling had no warmth but tender, margins were well defined and consistency was firm and non pulsatile. On aspiration the swelling yielded white keratin like aspirate on cytology revealed inflammatory cells as shown in Figure 2, ultrasound picture of the swelling suggested it to be an infected sebaceous cyst. After thorough systemic examination the patient was prepared for surgical excision of the cystic lesion along with the involved layer of skin (Figure 3). Under local anesthesia infiltration and with aseptic precautions, incision was placed over the skin fixed to the cyst (Figure 4) and with great care dissection was done around the cyst without rupturing it. After all the margins of the cyst was free from the subcutaneous tissue the deep margin of the cyst was separated from the buccal
branch of facial nerve (Figure 5) and Figure 6 shows the excised specimen. After excision of the cyst the round defect (Figure 7) was converted to a linear wound by excision of dog ears superiorly and inferiorly. After achieving haemostasis the wound was closed in layers with 3-0 vicryl and subcutaneous 4-0 ethylone sutures (Figure 8). The post operative phase was uneventful and the wound healed with minimal scar tissue. The histopathological examination revealed it to be a dermoid cyst.
Discussion
Sebaceous cyst is a term used for clinical diagnosis. Histologically the sebaceous cyst is a type of epithelial cyst. The epithelial cysts are the lesions formed by invagination and cystic expansion epidermis of skin or the epithelium of hair follicle.

This epithelial cyst can be divided to many types based on the content of the cyst and the epithelial lining [4].
- Epidermoid cyst
- Dermoid cysts
- Pillar cyst
- Steatocystoma

Epidermoid cyst is defined as a simple developmental or implantation cyst lined by epithelium. These are slow growing, firm to fluctuant predominantly occurring in head, neck, face, scrotum and face. The content of the cyst is laminated strands of keratin, right to be called as keratin cyst [5].

Dermoid cyst were considered to be developmental anomaly as they develop due to the entrapment of epithelium island during the embryonic midline closure region like auricular, nasal, sub lingual, sub mental and suprasternal regions [6]. The dermoid of head have bone erosions and the surgical excision of these can cause intracranial communicatons. These dermoid are equally distributed in both male and female. These occur between the age group of 15 to 35 years. In 1883 Barker classified dermoid cysts into the following types
- Midline
- Sublingual
- Submental
- Lateral
- Unilateral
- Bilateral

The difference between the midline sublingual and submental dermoid is the location, submental dermoid occurs below geniohyoid and sublingual dermois occurs above geniohyoid [7].
Pillar cysts (isthmus catagen cysts) are cyst occurring from the outgrowth of external root sheath of hair, it occurs in the scalp and back and in hairy regions of the body. It occurs as solitary lesion in 30% and as multiple lesions in 70% [8]. Clinically these cysts are devoid of punctum and present in elderly female the cyst is soft slow growing and fluctuant. Histologically they show features as trichilemal keratinisation of the cystic epithelium that is keratinisation occurring without the granular layer of epidermis [9]. The cystic lumen is filled with thick keratin and lipid substance. These cysts may have, mitotic figures, nuclear atypia nd dyskeratotic cells. Immuno histo chemistry study reveals the presence of following cell cycle regulatory markers like p27Kip1, MMP9, LAT and BCL-10 It is believed that imbalance between dermal fibroblast and Matrix metalloproteinases leads to the cystic expansion [9].

Steatocystoma are true sebaceous cyst in which the epithelium lining of the cyst is formed by the ductal walls of sebaceous glands. The content of the steatocystoma is the sebum the secretions of sebaceous glands. If it occurs as multiple lesion it is called steaocystoma multiplex. The clinical features are slow growing swelling with punctum, asymptomatic and when infected turn symptomatic and painful with inflammatory cystic contents [10].

Multiple epithelial cysts occurring along with osteomas and intestinal polyps is a feature of Gardner’s syndrome. The complications of longs standing epithelial cysts are infection, developments of cocks peculiar tumor, cutaneous horns (compacted keratin) and squamous cell carcinoma [11].
The Cock’s peculiar tuour was described in 1852 by Cock for an ulceroproliferative change in pillar epithelial cyst [12]. The histopathologic features of Cock’s peculiar tumour are heavy inflammatory infiltrate in pilosebaceous proliferations, cellular atypia along with the presence of foreign body giant cells [13]. The causative factors of Cock’s peculiar tumour are the inflammation and trauma occurring to a pillar cyst. Though it resembles squamous cell carcinoma the treatment is conservative excision [14].

Treatment of (sebaceous) epithelial cysts involves the following approach [15].
- Conventional elliptical excision
- Zuber’s minimal excision
- Punch incision
Conventional excision is done by a straight line incision over the cyst, when the overlying skin is not involved, an elliptical incision over the over cyst is used when the skin over the swelling is involved and the elliptical shape of incision can be extended transversely to include the skin attached to the cyst [16]. After adequate dissection without puncturing the cyst, margins of the cyst are exposed and freed from the attachments, the cyst is enucleated en toto and the closure of the wound is done in layers. Advantage of this technique is that the complete cystic lining is obtained for histopathological examination for ruling out any carcinomatous changes. The chances of cystic rupture and recurrence are less [17]. The recurrence rate of sebaceous cysts treated by conventional excision was 0.66% as reported by Klin and Ashkenazi [18].

Zuber minimal excision is a technique of excision of non inflamed epithelial cyst by which an stab incision 2-3mm is placed on the cyst and small haemostat is introduced in to cystic cavity to open the cystic contents. And thumb compressions are used to completely evacuate the cystic contents out of the cyst. Once all the cystic contents are evacuated the hemostat is used to hold the cystic lining along its base and entire capsule is gently elevated out through the small incision. Wound is rechecked for any presence of any remaining lining before giving a tight dressing on to the wound, closure of incision is not required. If the cystic contents are spilled out in to the dermis, it evokes a foreign body response and chance of recurrence is higher. If the cystic lining is thin, it breaks into pieces which become difficult to recover. As an empty cavity is created the chance of hematoma is more.

Punch incision technique is similar to Zuber minimal excision technique, except for the incision is made out of a tissue punch used for tissue biopsy. Once after the punch incision the haemostat is used to evacuate the content and squeeze out the capsule of the cyst through the punch incision [19]. The advantages of this techniques are less invasiveness, versatility, minimal bleeding, less scaring and reduced healing time. The defect packed with Silver impregnated membrane Poly M showed better cosmetic result than open wounds [20]. According to Lee at al, in a Randomised Controlled Trial comparing the elliptical excision and punch incision technique, operating time for cyst lesser than 2cm was less punch technique, while the operating time for cyst greater than 2cm was less in elliptical excision technique [21]. The punch incision technique produced a cosmetic scar. According to Mehrabi The recurrence rate of sebaceous cysts treated with punch incision technique was 3.6% [22].

Non surgical management like phenol injection or Solcoderm application was advocated by Ronnen M, Suster S and Klin B. After incising the cystic capsule they used socoderm (copper ions 15 p.p.m., oxalic acid 40 mg/ml, lactic acid 3 mg/ml, nitrate 410 mg/ ml and acetic acid 40 mg/ml) in to the cystic lining to fixate the cystic epithelium. This approach is used when the location of cyst is in unfavourable region for surgical excision. However inflamed sebaceous cyst requires aggressive surgical treatment to avoid recurrence [23].

Management of infected sebaceous cyst is debatable as the conventionally used two staged procedure of incision and drainage followed by surgical excision was followed until 1969 when Khafif RA and Attie JN performed the same in one stage procedure. Decompression of the abscess is done by stab incision in the apex of cyst followed by excision of the cyst under same field block [24]. According to Lookbill and Marks infection manifests without abscess formation it is better to premedicate with antibiotics till the infection subsides and proceed with surgical excision. This treatment result achieved better primary healing than two staged procedure [25].

Conclusion
To summaries the term sebaceous cyst is used in clinical diagnosis, though histological diagnosis may vary. The sebaceous cysts less than 2cm is treated by minimal excision or punch incision methods and for the sebaceous cyst greater than 2cm conventional excision is used. When infected without abscess formation sebaceous cyst is treated by surgical excision under antibiotic coverage. If abscessed the sebaceous cyst is treated by incision drainage and excision as one stage procedure.

Reference
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