

Surgical Enucleation of Dentigerous Cyst Associated with Impacted Third Molar using Superficial Cervical Plexus Block: A Case Report

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Abstract

A dentigerous cyst is an odontogenic cyst usually related with the crown of impacted or unerupted teeth. It is a type of cyst that remains initially as completely asymptomatic unless when infected and can be discovered only on routine radiographic examination. We present a case of dentigerous cyst, present in left mandibular region associated with cortical expansion which has been enucleated and the associated tooth was extracted successfully under superficial cervical plexus block concomitantly with mandibular nerve block.

Keywords: Dentigerous cyst, Superficial cervical plexus block, Cervical plexus block.

INTRODUCTION

The dentigerous cyst is the second most common cyst of the jaws making around 14–20% of all jaw cysts, they are more predominant in males and in mandible.^[1-4] By definition, this cystic lesion is attached to the cervix of an impacted or unerupted tooth resulting from proliferation of reduced enamel epithelium after the enamel formation. They are usually discovered on routine radiographic examination. Dentigerous cysts are always radiolucent and normally are unilocular, but sometimes large lesions show a scalloping multilocular pattern.^[3-6] The frequency of dentigerous cyst formation is around 1.44 per 100 unerupted teeth.^[7] For mandibular third molars, the frequency of impaction to that of cyst formation is roughly the same, but in case of maxillary third molars, frequency of impaction than cyst involvement is much higher.^[8] The chances of cyst formation around the crowns of unerupted mandibular first premolars, maxillary incisors, or mandibular second molars are not very high, as frequency of failure of eruption of these teeth is extremely low.^[9] Nearly, all dentigerous cysts are asymptomatic but may attain large size with resorption of the roots of teeth until it manifests clinically or radiographically. Treatment of cyst consists of removal of unerupted tooth. Prognosis is usually excellent and recurrence is infrequent if completely removed.

The superficial cervical plexus block (SCPB) is easy to perform and a simple technique, but unfortunately is often

left unnoticed as an alternative to general anesthesia.^[10] The cervical plexus block was first presented and performed by Halstead in 1884. Later Kappis in Germany described the posterior route. Despite the fact that Heidenhein launched the lateral approach, it was Labat who popularized this technique in the America. The SCP block has been well elicited for anesthesia of the neck, submandibular region, and the ear lobe and is potentially useful for patients with lacerations in the ear lobe, submandibular abscesses and mandibular injuries, or injuries to the neck. Its implementation in oral and maxillofacial surgery (OMFS) has been for surgical exploration in perimandibular region, excisions of superficial lesions, cysts in the body of mandible, angle fractures of the mandible, and skin suturing in the corresponding dermatome.^[11-13]

The following case report illustrates a dentigerous cyst in the body of the mandible which was successfully enucleated using SCPB concomitantly with mandibular nerve block.

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CASE REPORT

A 24-year-old male patient reported to our department with a chief complaint of pain in the lower left side of his face for 1 month. Extraoral examination revealed no abnormalities. Intraoral examination revealed slight tenderness on percussion on the second molar. The panoramic radiograph (Figure 1) showed well-circumscribed radiolucent lesion enveloping the unerupted third molar, that is, 38. Based on the aforementioned findings, it was provisionally diagnosed as dentigerous cyst with an odontogenic keratocyst or radicular cyst as differential diagnosis for which enucleation was considered as treatment option. The procedure started with patient preparation and scrubbing under aseptic precautions with constant vitals monitoring.

Technique of SCPB

The patient was made to lie supine with a small towel under the head, which is to be turned slightly toward the side that is not being blocked. Against gentle resistance from the anesthetist's hand, the patient was instructed to lift the head. A simultaneous slight Valsalva maneuver was encouraged to help trace the outline of sternocleidomastoid muscle and locate the external jugular vein. The midpoint of the posterior border of the sternocleidomastoid muscle was located and marked (Figure 2). Then, a 22-gauge 4 cm needle was advanced from 2 to 3 cm superiorly and inferiorly into the subfascia along the border of the muscle with 10 mL of mixture of 3:1 ratio bupivacaine to lignocaine which was infiltrated on all the directions to block the lesser occipital nerve, the great auricular nerve, the third cutaneous nerve, and the supraclavicular nerve which are the four branches of the superficial cervical plexus (Figure 3). Then, 15 min later injecting the local anesthetic before the adequacy of the block was determined. Concomitantly mandibular nerve block was given intraorally.

After achieving local anesthesia, the buccal flap was raised and the cyst outlines were being noticed. Enucleation with curettage of the cyst was done together with surgical removal

of the 38 tooth (Figure 4). The SCPB and mandibular nerve block also provided regional anesthesia for a duration of around 4 h post the surgery. The enucleated lesion was sent for histopathological examination which confirmed it to be dentigerous cyst.

DISCUSSION

A dentigerous cyst is an odontogenic cyst, known to be of developmental origin associated with the crown of an unerupted



Figure 2: The midpoint of the posterior border of the sternocleidomastoid muscle was located and marked for superficial cervical plexus block



Figure 3: Ten milliliters of mixture of 3:1 ratio bupivacaine to lignocaine infiltration given to achieve regional anesthesia



Figure 1: The orthopantomogram showing well-circumscribed radiolucent lesion enveloping the unerupted third molar

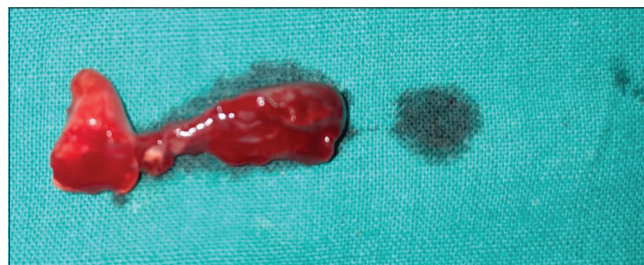


Figure 4: Enucleation with curettage of the cyst was done together with surgical removal of the 38 tooth

tooth. In regard to its pathogenesis, it has been suggested that the pressure put by an erupting tooth on the follicle may block or restrict the venous flow leading to accumulation of exudate between the reduced enamel epithelium and the tooth crown. In summation to the developmental origin, some authors have suggested that periapical inflammation of non-vital deciduous teeth in proximity to the follicles of unerupted permanent successors may be a factor for triggering this type of cyst formation. Radiographically, the cyst usually appears as unilocular with well-defined margins and often sclerotic borders but sometimes it may be multilocular in appearance and may also have a continuous cystic membrane. Infected cysts present with ill-defined margins. The most common location of dentigerous cysts are the mandibular 3rd molars and the maxillary canines, and they rarely involve deciduous teeth and are occasionally associated with odontomes. A dentigerous cyst is often treated by excision of the cyst along with the extraction of the associated tooth. In case of a large cyst, marsupialization is done.^[14]

The SCP block is frequently used in a variety of disciplines such as in thyroidectomy, carotid endarterectomy, vocal cord surgeries, and cervicogenic painful syndromes. It is underrated but is highly effective and in OMFS, many authors have mentioned its use. Kanthan (2016) used the SCPB in treating 10 patients out of which one had cyst enucleation in the mandibular body region. Finally, SCP block with concomitant mandibular nerve block has a high rate of success, high patient acceptability, and low complication rate. The overall quality of operating condition as assessed by the surgeon was satisfactory. Careful patient selection is an important factor to exclude that is medically and temperamentally unsuitable.^[15]

CONCLUSION

SCP block with concomitant mandibular nerve block has a high success rate, with less complications and very high

patient acceptability and can be used as an alternative to general anesthesia in selective OMFS cases.

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