Bismuth Iodoform and Paraffin Paste: A Boon in Treatment of Keratocystic Odontogenic Tumor : A Case Report

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ABSTRACT

Odontogenic cyst and tumors are common findings in oral and maxillofacial region. Cystic changes commonly arise in relation to unerupted third molars. In this article we discuss two case reports one a Large OKC (KCOT) which was enucleated and the residual cavity was packed with BIPP (Bismuth iodoform and paraffin paste). This article also illustrates the advantages of BIPP paste.

KEYWORDS: BIPP, KCOT, Odontogenic Cyst, Unerupted third molars.

INTRODUCTION

Odontogenic cysts and tumours have the potential to reach considerable sizes in the jaw. There are many conditions affecting the jaws that present with a cystic, radiographic appearance. OKC often presents as a large unilocular radiolucency in young individuals, typically at the posterior mandible, and is usually associated with an impacted tooth. Radiographically, both the lesion exhibits minimal peripheral sclerosis. Over 80% of these cysts and tumours enclose the crown of a tooth and mimic dentigerous cysts radiographically.[1]

OKC is presumed to arise from cell rests of the dental lamina or from offshoots of the basal cell layer of the oral epithelium.(Stoelinga, 2005; Giuliani et al., 2006; Chirapathomsakul et al., 2006; Kolokythas et al., 2007). The definition "odontogenic keratocyst" first was proposed in 1956, by Philipsen. These are odontogenic cysts and not inflammatory in origin, thus the term odontogenic keratocyst was coined.[2]An OKC can initially present radiographically as a unilocular radiolucency, and large lesions exhibit multilocular appearance, often with densely corticated margins.[3]

Bismuth iodine paraffin paste is routinely used

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to pack nasal cavities. James Morrison Rutherford used BIPP to dress First World War soldier's wounds. BIPP Pack is sterile gauze (ribbon) impregnated with a paste containing one part bismuth sub nitrate, two parts iodoform and one part sterile liquid paraffin by weight.

CASE REPORT

A 24 years old male reported to Department of oral and maxillofacial surgery with a chief complaint of swelling in the left cheek region since last two months. Swelling has increased since last 2 months. Extra oral swelling was extending from left coronoid region to angle of mouth. Swelling was non tender on palpation, hard and there was on local rise in temperature. Radiograph showed radiolucency in the left ramus region Radiolucency was unilocular and surrounding bone showed expansion from left side mandibular second molar to the coronoid process. Lower border of mandible was intact.

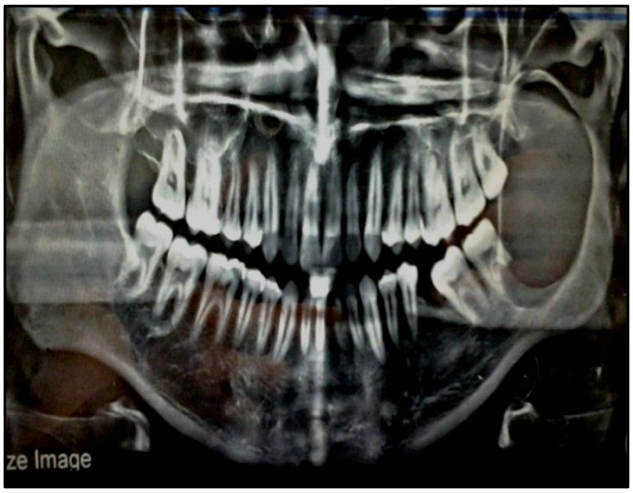

Figure No. 1: Pre-Operative OPG

Treatment required was resection of the mandible (segmental mandibulectomy) with reconstruction using free fibular flap.

Treatment planned and executed was Enucleation of the cyst, Peripheral osteotomy and use of Carnoy's solution, associated left side second molar extraction and long term dressing of the cavity using BIPP. The specimen was further sent for histopathological examination which confirmed it to be odontogenic keratocyst.

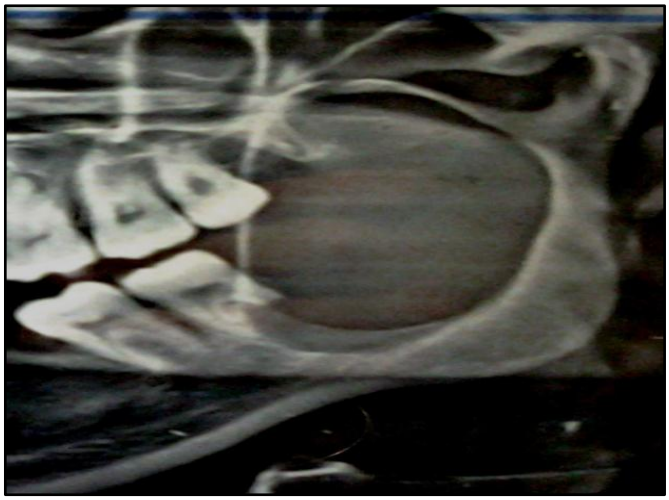

Figure No.1a : Pre-Operative OPG, Unilocular Radiolucency associated with erupted molar

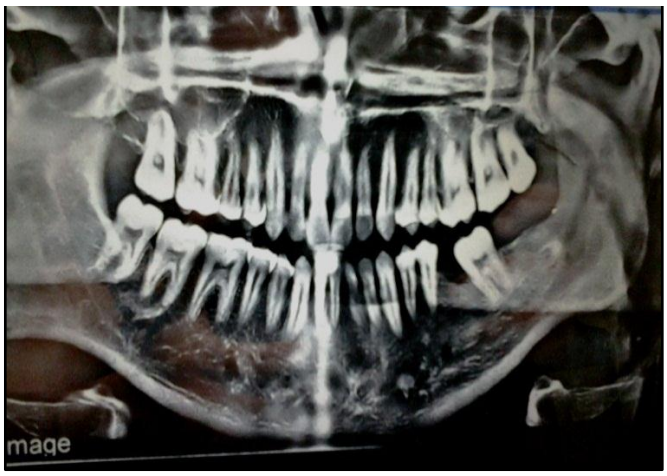

Figure No.2 : 1 Year Post-Operative OPG

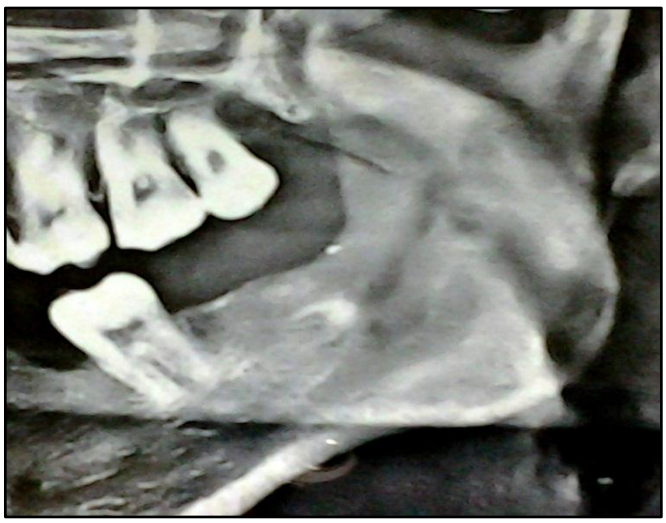

Figure No.2a: 1 Year Post-Operative OPG, Site Of Complain

DISCUSSION

A cyst is a pathological cavity containing fluid or semifluid contents, which has not been formed by the accumulation of pus. Cysts of the jaws are common, and the majority are lined completely or in part by epithelium.[1]The periapical cyst is the most common odontogenic cyst (52.3% to 70.7% of all odontogenic cysts) followed by the dentigerous cyst (16.6% to 21.3% of all odontogenic cysts) and OKCs (5.4% to 17.2% of all odontogenic cysts).[4,5]

Keratocysts can be located at the periapical region giving the differential diagnosis of periapical cysts; or they may envelope the crowns of unerupted teeth, mimicking dentigerous cysts.[6,7] It has been postulated that several mechanisms are involved in the recurrence of OKCs, including incomplete removal of the cyst walls or the epithelial islands and/or microcysts, development of a new cyst as in BCNS, parakeratocysts, and surgical access difficulty (Stoelinga, 2005; Giuliani et al., 2006; Chirapathomsakul et al., 2006; Tolstunov and Treasure, 2008).[8,9,10] The exact location of epithelial islands and microcysts remains controversial. They may be located in the connective tissue cyst wall, in the overlying soft tissue and/or in the bony bed of the cyst. The aim of the use of liquid nitrogen, Carnoy's solution and peripheral ostectomy is to eliminate epithelial islands and microcysts in the peripheral bone. These adjuncts, when used with enucleation, considerably decrease the recurrence rates (Stoelinga, 2005; Tolstunov and Treasure, 2008).

BIPP is a bright yellow paste of sub nitrate 250mg/g, iodoform 500mg/g and liquid paraffin 250 mg/g. It is usually indicated to pack cavaties after ear, nose and throat surgery. This paste is usually placed in cavities and left in place till the cavities heals or a graft is taken. It is not recommended to be used for open wounds.

Bismuth has topical antiseptic properties and can be used as an astringent. This property contributes to the antibacterial properties of BIPP by releasing dilute nitric acid on hydrolysis. Bismuth has a half-life of 5 days in the body but is known to remain in kidney for a longer duration. Bismuth has side effects like neurotoxicity because it is known to interfere with oxidative metabolism of brain. Symptoms of its toxicity include Head ache, Nausea, Stomatitis, Bismuth line in the gingiva (Bismuth line).

Iodoform chemical name is triodomethane. This is another component of BIPP. It has a distinctive colour as well as smell. Iodoform decomposes to release iodine which is an antiseptic. Paraffin is added into BIPP as a lubricant which aids in atraumatic placement and removal of pack.

CONCLUSION

With the long term follow up and use of BIPP we could save the patient of a supra-major surgery including resection of mandible and free fibular flap. The only drawback is increased chances of pathological fracture during the follow up period. Patient should be advised soft diet for a long period. This method of conservative management using BIPP can be used in benign lesions, cystic lesions etc. and not in case of malignancies where an aggressive approach remains the treatment of choice.

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