

# Treatment of the follicular cyst of the mandible in a pregnant woman – a case study

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## Abstract

Follicular cysts are ranked among epithelial, developmental odontogenic lesions of jaw bones. In this study we describe the case of an extensive, follicular cyst of the mandible, originating from the retained third molar in a 28-year old pregnant woman. A two-stage method of treatment was applied on account of the extensiveness of the cyst, the state of pregnancy, confinement, and breastfeeding. Cystectomy was performed 2 years after the first admittance. The long period of decompression of the cyst allowed for normal functioning of the patient during an important part of her life. With the treatment, the hyperplastic process of the lesion was stopped, and in the end, a significant reduction in the size of the cyst and bone reconstruction of the mandible took place. The follicular cyst and tooth 48 were extracted together, without the risk of greater complications.

## Key words

follicular cyst, retained tooth, two-stage treatment method

## INTRODUCTION

A follicular cyst is a gentle odontogenic lesion which develops from the enamel epithelium of the tooth bud, most often in the incisal edge or the chewing area. It appears in the process of second teething, causing indolent distortion of the jaw or mandibles [1-3]. It appears more often in the mandible and is connected with the third molar or second premolar, whereas in the jaw it is associated with the fang and wisdom teeth [4]. Odontogenic cysts develop as a result of the proliferation and expansion of island cells of the enamel epithelium which yield to the vacuolar degeneration and create a pathological hollow, lined with liquid producing epithelium [5].

They develop slowly, most often without symptoms, destroying bordering tissues. In order to diagnose the cyst, a radiological examination – a pantomogram, an x-ray of the sinuses, as well as computer tomography, are important to assess the extensiveness and for topography differential diagnostics of the lesion. Many, both benign pathological and malicious lesions, can produce the image of a follicular cyst in a radiological picture [2,3,5]. Gigantic cysts lead to bone deformation; transfers of neighboring teeth can cause pathological fractures, particularly of the mandible, as well as inflammatory conditions and cancerous transformation to adamantinoma or to flat-epithelial cancer [6-9].

Due to the possibility of serious complications, early detection of the lesion and an adequate treatment play a significant role. At present, one-step I and II according to Partsch methods, as well as the dual-stage method, are used in the treatment of odontogenic cysts of the jaw bone. With cystectomy, or a marsupialisation (Partsch method I), the

cyst is converted through resection of its wall into a variant hollow in the oral cavity. The decreased pressure in its interior favours bone regeneration, thereby reducing bone loss. It is mistake to leave the follicle of the cysts in the oral cavity, which can run the risk of a malignant transformation and the reinitiating of the lesion. However, in some cases it is the method of choice when operative treatment is impossible on account of the difficult condition of a patient.

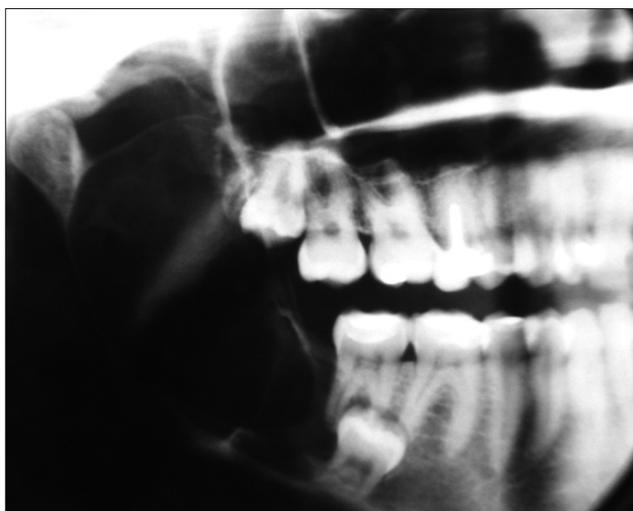
One-stage cystectomy (Partsch II) is an extirpation method, relying on the removal of the cyst, with consequent healing of the wound through the localization of the blood clot in the bone hollow [10, 11]. This method has found application in small, average and big cysts, when the injured bordering tissues are excluded and the cyst is surrounded by bone tissue on every side.

In the presented case, the dual-step procedure was applied during which we decompressed the cyst by cutting a window in its wall. In the second stage, the follicle of the cyst was entirely removed from the bone. The permanent outflow of contents of the cyst reduces the pressure on the bony tissue and led to its gradual reconstruction. Total extirpation of the reduced lesion saved the neighboring tissues, and is in compliance with the requirements of cancer prevention [1,4,7,10]. In every case, a histopathological verification of the removed cyst is obligatory.

## CASE REPORT

The 28-year-old patient was admitted to the Maxillofacial Surgery Department of the Medical University in Lublin (south-east Poland) in August 2009 due to a distinct asymmetry of the right side of her face, caused by deformation of the hard core and the branch of the mandible of the right side. On the basis of clinical and radiological examinations, a big osteolytic lesion located in the mandible, both in the hard core and the branch, with a retained tooth 48 were

ascertained. The retained third molar was located below the roots of teeth 47 and 46. Destruction of the bone under these teeth reached the condyloid process, indenting the mandible and the base of the coronoid process (Fig. 1). During an intraoral examination near the angle and the branch of the mandible, tissues could be seen sticking out. The mucous membrane was not changed in an inflammatory process, palpably without pain complaints.



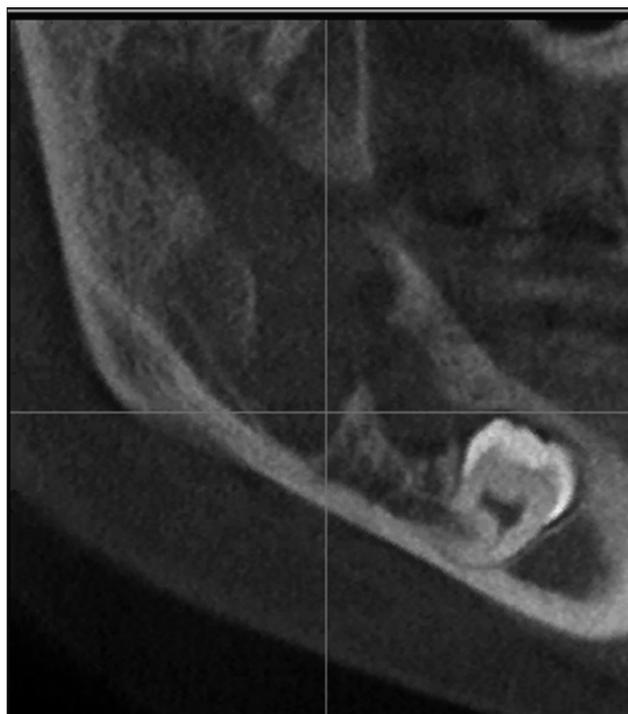
**Figure 1.** State before treatment with follicular cyst and retained tooth 48

Radiological imaging suggested a follicular cyst. The patient was categorized for dual-stage treatment to cure the pathological lesion. During a one-day stay in hospital, and under local anesthesia with 2 % Lignocaine with Noradrenalin, a hole with a diameter of about 1cm was made in the soft tissues at the base of the branch of the mandible in order to thin the bone structure. The fragment of cyst collected in this way was sent for histopathological examination. The hollow of the cyst was rinsed with an antiseptic solution and partially treated with gauze with jodoform for a week. During the reconstructive process, the patient was informed about the necessity of rinsing the cyst hollow 2-3 times a day with an antiseptic solution, everyday hygiene of the oral cavity, and reporting for check-ups every 2 weeks. The patient reported for treatment in an advanced stage of pregnancy, and during examination a profound constriction of the decompression hole was confirmed. This was broadened under local anesthesia.

During the period of pregnancy, no radiological examinations were performed. After the delivery and cessation of breastfeeding, control X-rays were taken (Fig. 2). The presence of a varied degree trabeculation of the intensification in the mandible branch, suggested the reconstruction of the bone structure and a remarkable regression of the lesion (Fig. 3).

Due to the pregnancy, the delivery and the post-delivery period, the cystectomy was conducted after a period of 2 years. During the whole control period, the patient managed the dressing and hygiene well, and no complications were observed.

Tooth 47 was treated endodontically, under general anesthesia. The cyst was extirpated and tooth 48 removed surgically (Fig. 4). Bone regeneration and the positive thickness of the walls, especially of the mandible branch,



**Figure 2.** The follicular cyst in the mandible shaft after decompression, with the bone window strengthening bone walls – axial projection



**Figure 3.** Follicular cyst prior cystectomy



**Figure 4.** State after extirpation of follicular cyst, surgical extraction of tooth 48. Tooth 47 treated endodontically

made the extirpation possible without complications. Histopathological examination of the material confirmed the existence of a follicular cyst. The postoperative wound healed through primary adhesion. The sutures were removed, and under control the clinical state returned to normal.

## DISCUSSION

At the Maxillofacial Surgery Department of the Medical University in Lublin the basic treatment of odontogenic cysts is the one-step extirpation of the lesion, along with the causal tooth or the resection of the peak of the root. In the described case, a two-stage method was applied on account of the extensiveness of the cyst, the state of pregnancy of the patient, the delivery and the breastfeeding. After about 2 years, the cystectomy was applied. We propose similar proceedings in developmental cysts in children for protection of the primordium of permanent teeth and the vitalities of neighboring teeth. Removing cysts in the second stage after the period of bone regeneration reduces the risk of damaging bone growth centers of the bone which, in consequence, prevents maxillofacial and masticatory defects [7,12,13]. Such treatment also allows leaving the retained causal tooth, and the spontaneous or assisted orthodontic carving placed in the dental arch.

According to the literature, the two-stage method of treatment of cysts of the jaw and mandible is applied most often at the centers in Cracow, Poznań and Gdańsk [10,14-16]; however, the one-step extirpation of the lesion is a routine proceeding for big cysts. The two-stage method of treatment of gigantic cysts is chosen because of the considerable destruction of bone tissue. However, in taking such a decision one should consider its advantages and disadvantages. Leaving the follicle of the cyst for a long time is incorrect from the point of view of cancer prevention. The epithelium of the follicle can be a starting point for such changes as: squamous cell cancer, mucosal-epithelial cancer, mixed tumour, odontogenic adenoma tumour, and adamantinoma [6,8,9].

According to Smółka [10], the period of decompression and extirpation of big cysts is diverse and ranges from 2 months to 3 years. According to statistical surveys by the author, reconstruction of the bone is achieved most quickly in the case of root cysts, and the slowest in bone tissue regenerating in the case of follicular cysts. In the group of cysts with a diameter greater than 2cm, reconstruction of the bone takes place slowly. The period of treatment, on average, amounted to 26 months. In the available literature, the period between the 1<sup>st</sup>-2<sup>nd</sup> stages ranged from 3 - 9 months [1,7,11]. However, it seems that determination of the time between decompression and extirpation of the cyst should be established individually, depending on size, localization, radiological control of bone reconstruction, and the state of health and personality of the patient. When an obturator is not used, increasing the frequency of checkups, patient discipline and good cooperation with the doctor are vital.

## CONCLUSIONS

A long period of decompression of the cyst enabled normal functioning for the patient in a period important to her.

The hyperplastic process of the lesion was stopped through treatment, and in the end, a final significant reduction in the size of the cyst and bone reconstruction of the mandible took place. The follicular cyst and tooth 48 were removed together, without the risk of complications.

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