

## Eruption cysts: a clinical report of 24 new cases

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*The eruption cyst (EC) occurs within the mucosa overlying a tooth that is about to erupt. In the past EC was considered a type of dentigerous cyst (DC) occurring in the soft tissues. Twenty four patients (mean age 4.44 years, range 1.0 month - 12 years) with EC were diagnosed and treated. EC was associated with natal teeth in two (8.3%) cases, with primary teeth in 10 (41.6%) cases and with permanent teeth in 12 (50%) cases. There was a gender predilection, the male to female ratio was 2:1. The primary mandibular central incisors and the permanent first molars were the most common site affected. The clinical appearance was a raised, bluish gingival mass on the alveolar ridge. The size was variable and dependent on the size and number of the associated teeth. The type of treatment provided was one of the following: no treatment (10 cases, 42%), extraction (2 cases, 8%) and marsupialization (12 cases, 50%). All surgical specimens underwent histopathologic examination. EC should be recognized as a separate entity from DC and a conservative treatment approach is recommended.*

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### INTRODUCTION

**E**ruption cysts occur within the mucosa overlying teeth that are about to erupt. The cysts appear as a bluish translucent, elevated, compressible, dome-shape lesion of the alveolar ridge. The eruption cyst (EC) may occur during the period of teeth eruption.<sup>1</sup> Eruption cyst is one of the local disturbances to eruption of teeth.<sup>2</sup>

In the past EC was considered a type of dentigerous cyst (DC) occurring in the soft tissues. Whereas, the typical DC develops around the crown of an unerupted tooth within the jaw bone, the EC occurs when a tooth is impeded during the eruption process within the soft tissues overlying the tooth.<sup>3,4</sup> Most authors refer to EC as a cystic lesion, that is a separate clinical entity from

DC.<sup>1,2</sup> Also according to the current WHO classification of epithelial cysts of the jaws, EC is a separate entity and has its own morphology code of the International Classification of Diseases for Oncology.<sup>5</sup> The reported average age for EC is 6 to 8 years.<sup>1,3,6,7</sup>

It is considered rare among adults.<sup>3</sup>

The reported treatment approach is marsupialization. The dome of the cyst is excised, exposing the crown of the tooth, which is allowed to erupt.<sup>3</sup> The purpose of this article is to report on 24 new cases of eruption cysts, the diagnosis and management.

### MATERIALS AND METHODS

During a ten year period, 24 patients (16 males and 8 females, mean age 4.44 years and range 1.0 month -12 years) with EC were diagnosed and treated. Clinical examination, periapical radiograph and histopathology were used to establish diagnosis. Age, gender, site, clinical appearance and the type of treatment provided were recorded.

### RESULTS

The clinical features of 24 cases of EC are presented in Table 1. Natal teeth (Figure 1) were involved in two (8.3%) cases, primary teeth (Figure 2,3) in 10 (41.6%) cases and the permanent teeth (Figure 4) in 12 (50%) cases.

The primary mandibular central incisors and the permanent first molars were the most commonly affected sites. Out of the 24 cases 16 (66.6%) were male and 8 (33.3%) were female. The male to female ratio was 2:1. The clinical appearance was that of a raised, bluish gingival mass on the alveolar ridge. The size was

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Table 1. Clinical features of 24 cases of eruption cyst.

No.	Sex	Age (month)	Site	Treatment
1	F	1	81.71	None
2	F	1	81.71	Extraction
3	M	6	81.71	None
4	F	6	81.71	None
5	F	7	81.71	Marsupialization
6	F	7	81.00	None
7	M	7	71.00	None
8	M	7	62.00	Marsupialization
9	M	7	61.51	None
10	M	9	52.00	Marsupialization
11	M	18	54.00	Marsupialization
12	M	24	53.00	Marsupialization
13	M	70	41.00	None
14	M	72	26.00	Marsupialization
15	M	75	16.00	None
16	F	75	26.00	None
17	M	84	26.00	Marsupialization
18	F	84	46.00	Marsupialization
19	M	90	11.00	None
20	M	108	34.00	Marsupialization
21	F	120	13.00	Marsupialization
22	M	126	13.00	Marsupialization
23	M	132	35.00	Extraction
24	M	144	27.00	Marsupialization

variable and dependent on the size and number of the associated teeth. The type of treatment provided was one of the following: no treatment (10 cases, 42%), extraction (2 cases, 8%) and marsupialization (Figure 3) (12 cases, 50%). The surgical specimen underwent histopathological examination.

**DISCUSSION**

It is widely accepted that EC is a cyst that lies superficially to the crown of an erupting tooth and that is lined with nonkeratinizing stratified, squamous epithelium.<sup>8</sup> The origin of EC continues to be debated. Some authors attribute the origin to degenerative changes in the reduced enamel epithelium following completion of amelogenesis<sup>9</sup> or that the cyst develops from the remnants of the dental lamina overlying the erupting teeth.<sup>10</sup> Others suggest that that the cyst represents an accumulation of tissue fluid or blood in the dilated follicular space around the crown of the erupting tooth.<sup>11</sup> However, such an accumulation of blood would be external to the enamel epithelium and would be recognized as a different entity, the eruptin hematoma. A recent report that chronic administration of cyclosporine to neonatal dogs induces the formation of eruption cysts, which is reversible once the treatment is discontinued,<sup>12</sup> is an interesting observation, however the relevance to human is questionable. In our present series none of the patients were exposed to cyclosporine prior to the development of EC.

Most of the cases (87%) in the present report were diagnosed in the first decade of life, an age period when the primary dentition and many of the permanent teeth

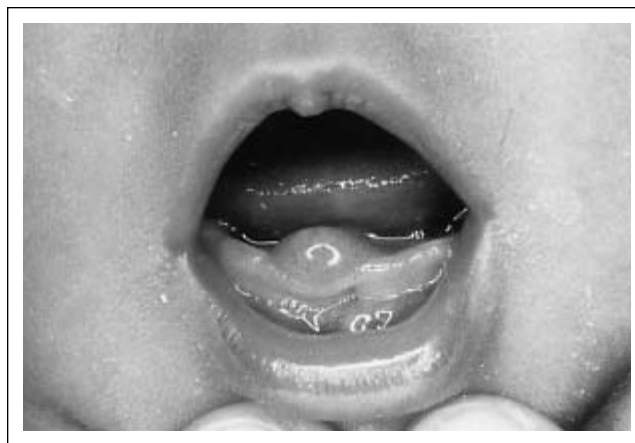


Figure 1. Eruption cyst of natal teeth affecting a newborn male infant. An elevated mucosal tissue within which the natal mandibular teeth can be felt.



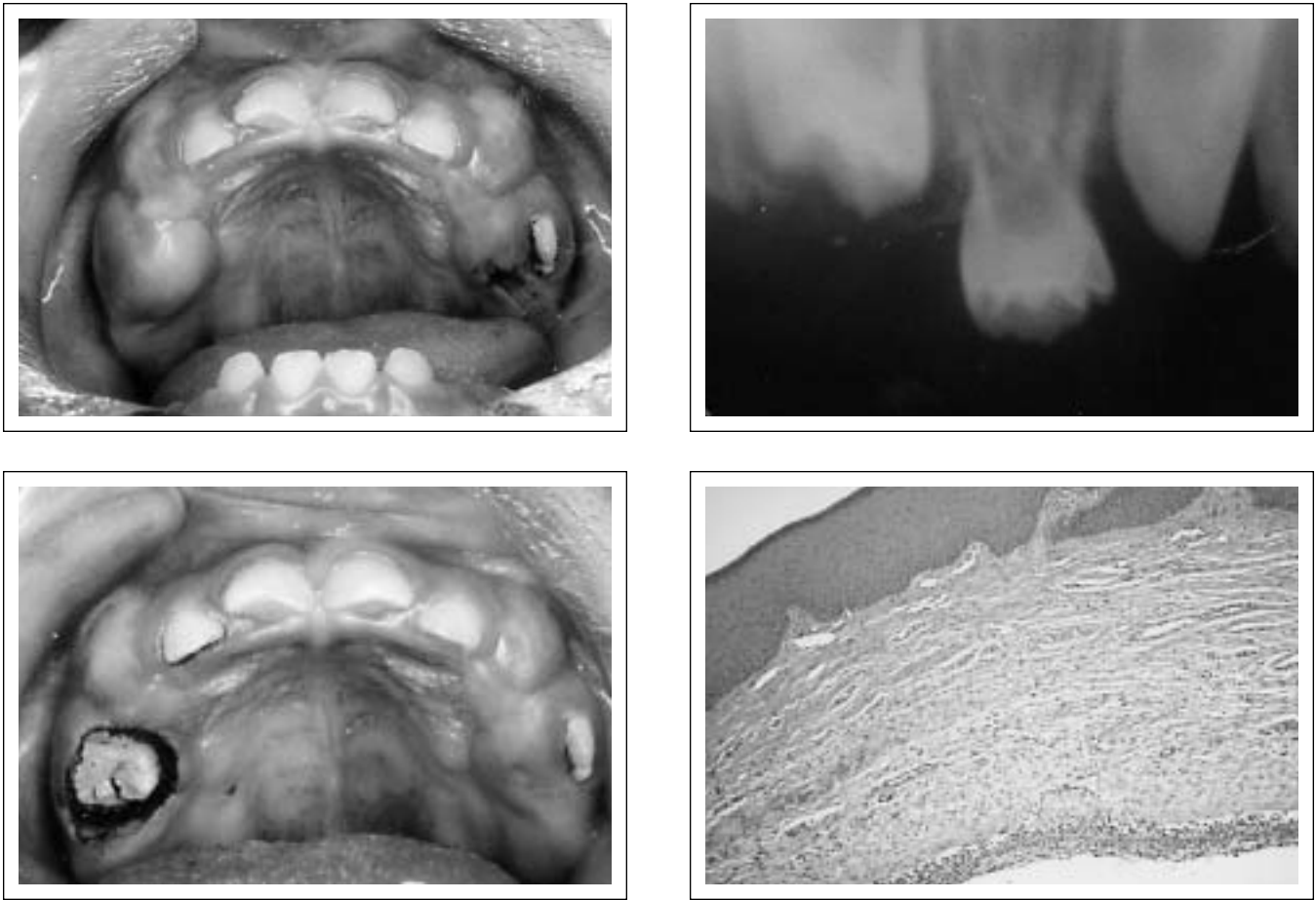
Figure 2. Bilateral eruption cysts associated with maxillary primary central incisors of a seven-month-old male infant.

normally erupt. This is in general agreement with earlier reports on EC.<sup>1,3,6,7</sup>

The average age of patients with EC in our present study was 4.44 years (range 1 month to 12 years), and is somewhat lower than the average of 6.66 to 8.18 years, in earlier reports.<sup>1,6,7</sup> This is probably due to the many patients of one year or less in our study. However, these differences were statistically not significant.

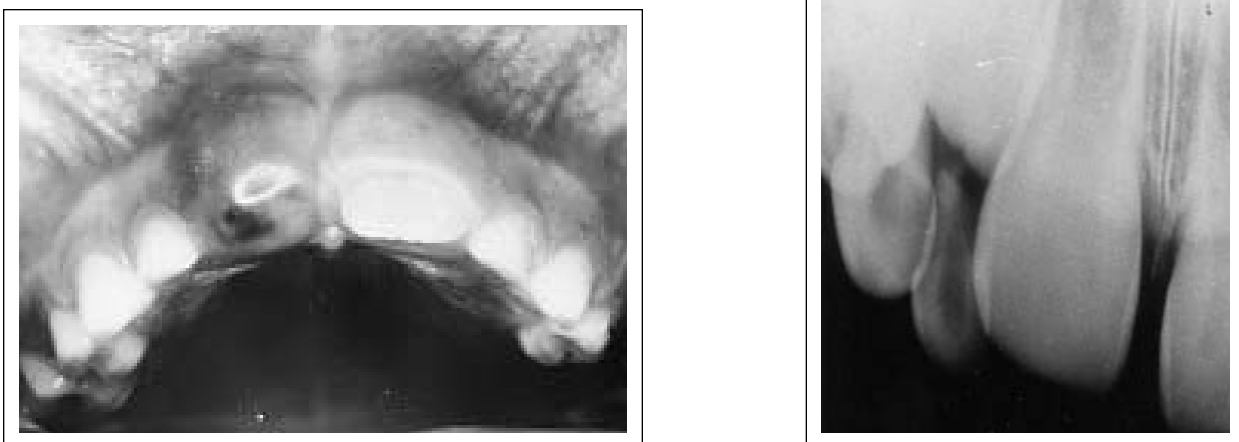
Our data show male predilection (M:F ratio was 2:1). Similar observation was also reported by Anderson on a large group of patients.<sup>6</sup> This in contrast to the data presented by Aguilo *et al.*,<sup>7</sup> who found no sex differences, or the data presented by Seward<sup>1</sup> with female predilection.

Treatment approach to EC has to be case specific. EC associated with natal teeth, usually mandibular central incisors, which are rootless with poor prognosis, surgical extraction would be the recommended treatment. The most common reported treatment used to be marsupialization, as was done in some of the cases in the present report. The dome of the cyst was excised, exposing the crown of the tooth, which is allowed to erupt.<sup>1,3</sup> It should be noted that marsupialization was



**Figure 3.** Eruption cyst affecting the right maxillary primary molar, of an 18 month old boy treated by marsupialization. (A) Clinical appearance of eruption cyst over the right maxillary primary first molar. (B) Periapical radiograph showing normal development of the affected tooth. (C) Clinical appearance immediately following marsupialization. (D) Photomicrograph of an eruption-cyst wall showing unremarkable gingival mucosa (top) and irregular inflamed but intact cyst wall and lining (bottom) (H&E x 250).

not done immediately. Treatment, may in some cases be unnecessary due to spontaneous eruption of the involved tooth and resolution of the EC. Postponing treatment should be considered first, especially since



**Figure 4.** Eruption cyst of a permanent tooth affecting a six-years-old male (A) Clinical appearance of an eruption cyst over the right maxillary permanent central incisor. (B) Periapical radiograph showing normal development of the tooth with no bone involvement of the cyst.

most patients are young and surgical intervention might present a management problem.

Although, EC is not detected on radiological examination because there is usually no bone involvement, radiography is highly recommended for evaluation of the morphology of the associated erupting tooth or its surrounding jaw bone.<sup>13</sup> Malformed teeth, with poor prognosis or impacted teeth, which are not suitable for guided forced eruption, should be extracted rather than marsupialized.<sup>14</sup>

The role of histopathology in establishing the final diagnosis is not essential, however, following surgery the cystic tissue should be sent for histopathological examination to prevent any possible misdiagnosis such as hemangioma, melanoma or unicystic ameloblastoma.<sup>15</sup>

EC may resemble eruption hematoma, which is said to occur over the crown of an erupting tooth due to bleeding into gingival tissue during eruption.<sup>16</sup> Transillumination can be helpful in the differential diagnosis, as an eruption hematoma will appear opaque whereas with EC bright transillumination can be seen.<sup>1</sup>

The present series of 24 cases of EC provides additional information on the diagnosis and management of EC. The initial treatment modality should be no treatment, and only later, surgical intervention should be considered.

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