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Bohn's Nodule: A Rare Case in a 7-month-old Male Infant

Ali Taqwim, Sukeksi Dyah Intannin...

Submission










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Participants

Fevito A. Obidos Jr. (faobidos)

tania saskianti (tania_saskianti)

Messages

Note	From
<p>Dear Dr. Tania Saskianti,</p> <p>We would like to respectfully inform you that the publication fee is currently set at USD 200.00 per manuscript. This covers payment for the support services for peer review, copy editing, layout, and pdf format as well as communication costs and maintenance of our website.</p> <p>We do not begin work on the submitted manuscript until payment is made in full. Acceptance of this publication fee is not a guarantee by the journal that the manuscript that has been submitted but does not comply with scientific and ethical standards will be published.</p> <p>You may contact our Managing Editor, Ms. Marjorie De Lima, (mmdelima@up.edu.ph) for further details.</p> <p>Sincerely,</p> <p>FEVITO A. OBIDOS JR.</p>	<p>faobidos 2021-01-04 07:58 AM</p>
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Fevito A. Obidos Jr. (faobidos)

Dr. Abigail Pascual-Domingo (acpascualdomingo)

tania saskianti (tania_saskianti)

Messages

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<p>Dear, Fevito A. Obidos Jr and Dr. Abigail Pascual-Domingo.</p> <p>Thank you for reaching us out and giving us very helping correction suggestion.</p> <p>we already corrected few parts of our journal:</p> <p>We have described the “key message” of the manuscript</p> <p>We have already improved the grammar manuscript</p> <p>we have already fixed the minor concern of figure 2b</p> <p>we have already fixed the problem about correlation between the sentences "the infant was born at 40 months and that Bohn's nodule is more common among full-term babies"</p> <p>We have improved the sentence construction in abstract</p> <p>We have added the keyword</p> <p>We have improved the sentence construction in introduction</p> <p>We have rearranged the discussion</p> <p>We have added the table about differential diagnosis</p> <p>We have improved the sentence construction in conclusion</p> <p>We have mentioned what makes our case is rare</p> <p>We have improved the highlight of introduction</p> <p>We have mentioned what makes our case report is different</p>	<p>tania_saskianti 2021-02-26 02:20 PM</p>



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tania saskianti (tania_saskianti)

Arianne Patana (arianne_galley)

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Participants

tania saskianti (tania_saskianti)

Arianne Patana (arianne_galley)

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Dear Dr. Saskianti,

arianne_galley

2021-05-26

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Sincerely,

Arianne Patana

Acta Medica Philippina

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▶ Dear Arianne Patana

tania_saskianti

2021-05-26

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2. Spelling our name Sukeksi Dyah Intanningrum, DDS
3. The arrow placement in "Figure 1".

We already attach the new image with the revision of arrow placement.

1 **Bohn's nodule: a rare case in 7 months-old male infant**

2
3 **Abstract**

4 ~~Bohn's nodule is a soft white cyst which is filled with keratin and~~
5 ~~often found in the oral cavity of the newborn. This case has high~~
6 ~~prevalence in newborns and rarely seen after three months of age. In this~~
7 ~~case, we report the observation and evaluation of a Bohn's nodule case in~~
8 ~~7 months-old male infant. Clinical diagnosis of the conditions is important~~
9 ~~to avoid unnecessary therapeutic procedure and provide suitable~~
10 ~~information for parents about management of the lesion. Herein, we report~~
11 ~~the observation and evaluation of a Bohn's nodule case in 7 months-old~~
12 ~~male infant.~~

13 ~~Bohn's nodule is a common occurrence among newborns up until three~~
14 ~~months but has been found in this case in a 7-month-old infant. Because~~
15 ~~of its unlikelihood to occur in said age group, proper diagnosis is~~
16 ~~necessary so as to avoid any unnecessary treatment. Bohn's nodule is a~~
17 ~~soft white cysts which are filled with keratin, which is seen in the oral cavity~~
18 ~~of the newborn or infant. This case has high prevalency in newborn but~~
19 ~~rarely seen after 3 months of age. Clinical diagnosis of the conditions are~~
20 ~~important to avoid unnecessary therapeutic procedure and provide~~
21 ~~suitable information for parents about the type of the lesion. Herein, we~~
22 ~~report the observation and evaluation of a rare Bohn's nodule case in 7~~
23 ~~months-old male infant.~~

24
25 **Keywords:** *Bohn's nodule, gingival cyst, inclusion cyst, infant, oral lesion.*

26
27 **Introduction**

28 ~~Bohn's nodule is a soft white cyst which is filled with keratin and~~
29 ~~often found in the oral cavity of the newborn or infant. This case has high~~
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31 ~~diagnosis of the conditions is important to avoid unnecessary therapeutic~~
32 ~~procedure and provide suitable information for parents about the type of~~
33 ~~the lesion. Herein, we report the observation and evaluation of a rare~~
34 ~~Bohn's nodule case in 7 months-old male infant.~~

35 Many features of the oral cavity are unique and peculiar during
36 developmental period of birth. Some benign oral mucosal conditions are
37 frequently found since newborn, which are transient in characteristic¹.
38 Among these conditions, we highlight the emergence of inclusion cysts,
39 which ~~are is~~ still developed during embryonic period. Inclusion cysts or
40 developmental nodules of the oral mucosa are intraoral swellings located
41 in the palate or alveolar ridges². ~~They are observed in 50-85% of~~
42 ~~newborns. As such, they represent the most frequent oral disorder in the~~
43 ~~first year of life².~~

44 There are ~~th~~ree different types of cysts have been identified: **Bohn's**
45 **nodules**, Epstein's pearls, ~~Bohn's nodules~~, and dental lamina cysts.
46 These terms are often used as synonyms, since all cysts similarly present
47 as white or translucent roundish solitary or multiple papules localized in
48 the mucosa of the palate or gums³. This pathology has common features

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49 while its nomenclature depending on the location of the cyst. Bohn's
50 nodules are cysts located in the gingival region on buccal or lingual
51 surface of alveolar ridge (not the crest) or on the hard palate away from
52 the midline. Thus, when cysts are found in the midline of the palatine
53 bone, they are referred as Epstein's pearls or palatal cyst of the newborn.
54 ~~However, if the cysts are located in the gingival region on buccal or lingual~~
55 ~~surface of alveolar ridge (not the crest) or on the hard palate away from~~
56 ~~the midline, they are classified as Bohn's nodules.~~ Dental laminar cysts
57 are found on the crest of the alveolar ridges. These cysts are presumably
58 derived from remnants of the ectodermal component of the tooth bud ~~so~~
59 ~~they called as dental lamina^{2,3}. The inclusion cysts are oral highly frequent~~
60 ~~abnormalities among newborns and rarely occur after 3 months of age^{4,5}.~~

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61 Bohn's nodules, described by Heinrich Bohn in 1886 as "mucous
62 gland cysts". They were derived from minor salivary glands. They were
63 found at the junction of the hard and soft palate, along lingual and buccal
64 parts of the alveolar ridges, away from the midline. These nodules were 1–
65 3 mm in size and filled with keratin. Bohn also classified cysts in the
66 alveolar ridges as mucous gland cysts. However, a century later it was
67 shown that these cysts are microkeratocysts⁴⁶.

68 ~~The inclusion cysts are oral highly frequent abnormalities among~~
69 ~~newborns which but rarely seen occur after 3 months of age^{5,6}. The~~
70 ~~existence of Bohn's nodules is often not realized by parents and even~~
71 ~~considered as normal condition. Parents rarely seek treatment for this~~
72 ~~lesion, but sometimes it makes parents panic. Parents often does not~~
73 ~~seek for professional opinion because they think that the cysts are the~~
74 ~~beginning of the tooth eruption which also indicates lack of knowledge~~
75 ~~about this condition. When the afflicted parents seek for a treatment, the~~
76 ~~dentist should be able to explain about the transient nature of the lesions,~~
77 ~~which are need no invasive treatment except regular follow up.~~

78 Bohn's nodule is a common occurrence among newborns up until
79 three months but has been found in this case in a 7-month-old infant.
80 Because of its unlikelihood to occur in said age group, proper diagnosis is
81 necessary so as to avoid any unnecessary treatment.

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82 Case Report

83 A 7 months-old male infant who was born at 40 weeks gestational
84 age was brought to the pediatric dental clinic of Dr. Syaiful Anwar Hospital
85 – Malang due to small nodule and round-shaped protuberances on the left
86 of maxillary gingival surface, which was assumed to be dental edges by
87 parents (Fig. 1). The ~~nodulelesion~~ was solitary, 2 mm in size, white-
88 colored, firm and not tender to palpation. There was no erythema around
89 it, the deciduous teeth were not erupted yet, no other abnormality was
90 seen in any other sites of the oral cavity and the physical examination was
91 otherwise unremarkable.
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Figure 1. Small nodule, 2 mm in size, white-colored, solitary, round-shaped protuberances on the left of maxillary gingival surface.

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Case Management

Based on the anamnesis, clinical examination (texture, consistency, and location), evaluation of nodule development, and compared with the differential diagnosis of other oral mucosal disorders, the diagnosis in this case is Bohn's nodules. ~~Based on the anamnesis, clinical examination, and evaluation of nodule development, the lesion was diagnosed as Bohn's nodules with a differential diagnosis of Epstein's pearls, dental lamina cyst, and natal/neonatal teeth.~~ The management of this case is instruction for parents to maintain their infant's oral hygiene and regular follow-up by every month observation was chosen to evaluate the nodule development. The clinical follow-up after one month was failed to show ~~manifestations of no clinical~~ significant improvement. The white nodule is still attached on to maxillary gingival surface and there was no increase in size. Three months later, the nodule was spontaneously resolved (Fig. 2b).

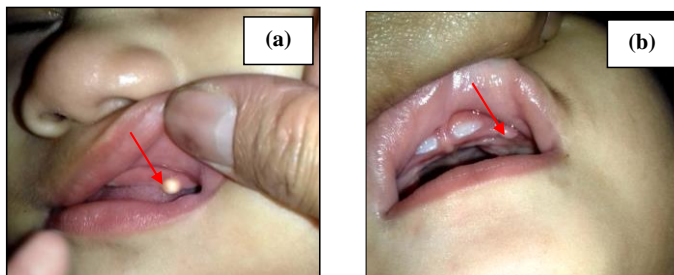


Figure 2. Regular follow-up and check-up by parents at home; (a) after 1 month; (b) after 3 months. Bohn's nodule was spontaneously resolved.

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Figure 2. Regular follow follow up and check up off by parents at home; (a) after 1 month; (b) after 3 months, Bohn's nodule was spontaneously resolved.

Discussion

Bohn's nodules are scattered over the junction of the hard and soft palate and are derived from minor salivary gland. Histopathologic evaluation may reveal a cystic lumen filled with desquamated keratin and lined by stratified squamous epithelium occasionally with inflammatory cells in the connective tissue. Sometimes these "true cysts" demonstrate a communication with the mucosal surface. Due to pressure from the cyst, the epithelium can also be atrophy^{7, 8}.

Bohn's nodules are found in newborn and usually disappear spontaneously in the early months of life. They are more frequently observed in full-term babies compared with pre-term ones. Although this condition is congenital, Bohn's nodules cause no symptoms and may go unnoticed. They may be the cause of concern when the parents become aware of their presence. The nodules occur mainly in the vestibular portion of the gingiva and more frequent on the maxillary arch than mandibular one⁹. When they are noticed by parents on the gingival surfaces, they often mistaken for natal teeth, which lead parents to seek medical attention.

Bohn's nodule must be differentiated with other developmental inclusion cysts including Epstein's pearl, dental laminar cyst, natal/neonatal teeth, and gingival cysts. Epstein's pearl is a small, firm, white, keratin-filled cyst, located on the mid palatine raphe. Dental laminar cyst is a yellow-white cystic lesion over the alveolar crest that arises from epithelial remnants of the degenerating dental lamina. Natal/neonatal teeth usually erupt in the centre of mandibular ridge as central incisors. They have little root structure and attached to the end of the gum by soft tissue¹⁰. Gingival cyst of newborn is a true cyst as it is lined by thin epithelium and usually shows a lumen filled with desquamated keratin, occasionally containing inflammatory cells. These structures originate from the remnants of the dental lamina and are located in the corium below the surface epithelium. The nodes are result of cystic degeneration of epithelial rests of dental lamina (rests of Serres). After invagination of the dental lamina to form the dental organ, the epithelial pedicle that connects the dental organ to the surface epithelium is broken down giving rise to the

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191 rest of Serres. Occasionally they may become large enough to be clinically
192 noticeable as discrete white swellings on the ridges^{7, 11⁸}.

193 Bohn's nodule are present in neonates, rarely after three months^{4, 5}.
194 In this case, bohn's nodule found in 7 months-old infant. The parents said
195 that there was no nodule found before. Parents do not seek professional
196 opinion because they think that the cysts are the beginning of the tooth
197 eruption which also indicates lack of knowledge about this condition. The
198 nodule found in 7 months old infant, where this age is the normal age
199 range for the eruption of the first deciduous incisive teeth. This condition
200 can misdiagnose with the new tooth by parents. Education for parents is
201 very important so that parents not panic and unnecessary treatment can
202 be avoided.

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204 ~~The diagnosis of gingival cyst must be differentiated from other conditions,~~
205 ~~which are typically seen during the same time and possibly also have a~~
206 ~~similar location. Common differential diagnosis including other~~
207 ~~developmental oral inclusion cysts (Epstein's pearl, dental laminar cyst)~~
208 ~~and natal/neonatal teeth). Epstein's pearl is a small, firm, white, keratin-~~
209 ~~filled cyst, located on the mid palatine raphe. Dental laminar cyst is a~~
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212 ~~erupt in the centre of mandibular ridge as central incisors. They have little~~
213 ~~root structure and attached to the end of the gum by soft tissue⁹. Based on~~
214 ~~the anamnesis, clinical examination (texture, consistency, and location),~~
215 ~~evaluation of nodule development, and compared with the differential~~
216 ~~diagnosis of other oral mucosal disorders, the diagnosis in this case is~~
217 ~~Bohn's nodules.~~

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218 ~~Bohn's nodule is gingival cysts arise arising from remnants of the dental~~
219 ~~lamina. Bohn's nodules, so called after Bohn's description of the same in~~
220 ~~1866, are scattered over the junction of the hard and soft palate and are~~
221 ~~derived from minor salivary gland. Bohn also classified cysts in the~~
222 ~~alveolar ridges as mucous gland cysts¹⁰. Histopathologic evaluation may~~
223 ~~reveal a cystic lumen filled with desquamated keratin and lined by~~
224 ~~stratified squamous epithelium occasionally with inflammatory cells in the~~
225 ~~connective tissue. Sometimes these "true cysts" demonstrate a~~
226 ~~communication with the mucosal surface. Due to pressure from the cyst,~~
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228 ~~Bohn's nodules are found in newborn and usually disappear~~
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230 observed in full-term babies compared with pre-term ones. Although this
 231 condition is congenital, Bohn's nodules cause no symptoms and may go
 232 unnoticed. They may be the cause of concern when the parents become
 233 aware of their presence. The nodules occur mainly in the vestibular portion
 234 of the gingiva and more frequent on the maxillary arch than mandibular
 235 one¹². When they are noticed by parents on the gingival surfaces, they
 236 often mistaken for natal teeth, which lead parents to seek medical
 237 attention.

238 A dentist should be able to recognize these lesions, explain that it is
 239 benign, self-limiting nature, to the parents or caregivers and reassure them
 240 to avoid unnecessary medical or surgical intervention^{123, 143}. Treatment is
 241 not necessary since Bohn's nodules are innocuous and disappear within a
 242 few weeks to a few months. The small cysts are thought to rupture
 243 spontaneously as they grow, their walls merging with the epithelial surface
 244 of the gums. Some authors suggest to ease their resolution by a gentle
 245 digital massage on the affected area, while others find any treatment
 246 useless or even noxious^{2, 912}.

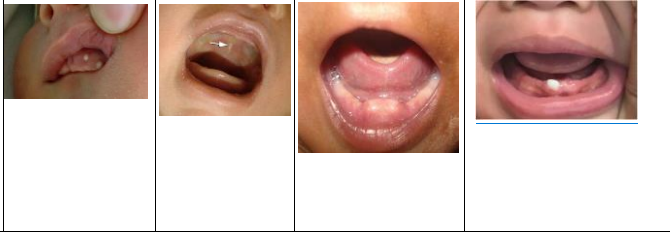
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Table 1. Differential diagnosis of Bohn's nodule^{13, 14, 43, 44, 15, 16}

	Bohn's nodule	Epstein pearls	Dental laminar cyst	Natal teeth
Appearance	Keratin-filled cysts, remnants of salivary glands	Small cystic, keratin-filled nodules	lingrowth ectodermal laminar surfaces of the oral cavity	Small and conical, but can assume the sizes and shapes of normal teeth. They may be yellowish or brownish and are usually immature, with enamel hypomineralisation and small roots
Region	The junction of hard and soft palate and along buccal and lingual parts of the alveolar ridges away from the midline	Roof of the palate, along midline of the palate	Mandibular anterior region	Mandibular primary incisors
Characteristic	Self-limiting	Self-limiting	Self-limiting	Required aggressive treatment

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Figure



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Conclusion

~~There is no special treatment for Bohn's nodules case. Instruction to maintain infant's oral hygiene, periodically observation, and counseling for parents regarding its benign and self-limiting nature is all that is required in the management.~~

Bohn's nodule is a common occurrence among newborns up until three months. Although rarely seen

, this condition can be found in 7 months-old infant which the normal age range for eruption of first deciduous teeth so that can make misdiagnose and overtreatment. Recognize of this lesion is important to avoid unnecessary treatment since it is a self limiting condition.

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