Epidermoid Cysts in Head and Neck: Our Experiences, with Review of Literature

Mainak Dutta · Jayanta Saha · Gautam Biswas · Sumit Chattopadhyay ·
Indranil Sen · Ramanuj Sinha

Received: 16 May 2011 / Accepted: 10 November 2011 / Published online: 4 December 2011
© Association of Otolaryngologists of India 2011

Abstract Epidermoid cysts are benign lesions, characterized by cystic spaces lined by simple squamous epithelium (epidermoid cyst), containing skin adnexa (“true” dermoid cyst) or tissues of all three germ layers (teratoid cyst). Head and neck constitute ~7% of all cases of epidermoid and dermoid cysts. There is often a diagnostic dilemma with the more common cystic lesions of this region. A retrospective case-series study of histologically proved epidermoid cysts in the head–neck region, from February 2008 to January 2011, in the Department of Otorhinolaryngology and Head-Neck Surgery of a tertiary Government teaching hospital in eastern India. The diagnosis was reached by fine needle aspiration cytology FNAC and subsequent histopathology where feasible. Necessary imaging was done for evaluation and management. A total of 28 cases were analyzed. 5 were female, with a male:female ratio of 4.6. Age range was from 2 to 60 years (mean = 30). Excision was the preferred treatment in 20 cases (71.4%). Various sites like the submandibular region (5), pinna (5), sublingual region (1), periorbital (6), suprasternal (6), along the anterior border of sternocleidomastoid (1) and glabella (3) were involved, along with

an iatrogenic implantation epidermoid cyst in a tracheostomy scar. Some of the interesting cases presenting with clinical dilemma have been emphasized. Epidermoid cysts are relatively less common in the head–neck region, hence are liable to be misdiagnosed. In this case-series, few cases presenting with enough elements of confusion and dilemma are discussed with overall analysis and review of the related literature.

Keywords Dermoid cyst · Epidermoid cyst · Head and neck

Introduction

Epidermoid cysts are benign lesions that are histologically characterized by cystic spaces lined by simple squamous epithelium (epidermoid cyst), containing skin adnexa (“true” dermoid cyst) or tissues of all three germ layers, like muscle, teeth, bone, cartilage etc. (teratoid cyst) [1, 2]. In literature, the term “dermoid cyst” has often been used to denote any of these three histologically distinct entities [2]. They tend to occur at areas of embryonic fusion, and constitute 1.6–6.9% of all cysts in the head–neck region [3]. Diagnosis is mostly by imaging and aided by fine needle aspiration, followed by excision biopsy. However, because of the different types of clinically similar and comparable lesions that occur in the head and neck region, there often are situations of diagnostic dilemma, and complicate the clinical picture and management protocol. Here we discuss the management strategies and the problems faced therein of few cases that were ultimately diagnosed as epidermoid cysts, but were considerably misleading, or unusual, in their presentations and clinico-radiological profile.

M. Dutta (✉) · J. Saha · G. Biswas · I. Sen · R. Sinha
Department of Otorhinolaryngology and Head-Neck Surgery,
R. G. Kar Medical College and Hospital, 1, Khudiram Bose
Sarani, Kolkata 700004, West Bengal, India
e-mail: duttmainak@yahoo.com

S. Chattopadhyay
Department of Otorhinolaryngology and Head-Neck Surgery,
MGM Medical College and Hospital, Kishanganj, Bihar, India

M. Dutta
C/o Dr. Jayanta Saha, Flat 2D, Block 2, Shrachi Village, Jessore
Road Madhyamgram, Kolkata 700129, West Bengal, India

Table 1 Distribution of the epidermoid cysts in the head–neck region and the treatment at a glance

Location	No. of cases	Age (in years)	Sex	Treatment
Submandibular region	5	30	Male	Excision
		36	Male	
		40	Female	
		28	Female	
		34	Male	
Sublingual region/floor of the mouth	1	23	Female	Excision
Pinna	5	3	Male	Excision
		5	Male	
		10	Male	
		15	Male	
		9	Male	
Periorbital	6	40	Male	Excision
		44	Female	
		50	Male	Observation
		32	Male	Excision
		26	Male	
Over tracheostomy scar	6	38	Male	Excision
		19	Male	
		2	Male	Excision
		34		Observation
		54		Excision
Suprasternal	6	6		
		45		
		50		Observation
Along the anterior border of sternocleidomastoid	1	23	Female	Excision
Glabella	3	60	Male	Observation
		55		
		41		

Patients and Methods

Histologically diagnosed as epidermoid cysts presenting clinically as masses in the head–neck region in the Department of Otorhinolaryngology and Head-Neck Surgery, R. G. Kar Medical College and Hospital, within the period of last 3 years, from February 2008 to January 2011, were analyzed retrospectively regarding their presenting complaints, location, clinical features and surgical planning, where necessary. No age limit was imposed. Fine needle aspiration cytology (FNAC) followed by histopathology, where feasible (cases treated by surgical excision), were performed to corroborate or verify our clinical diagnosis. We advised CT scan for select cases for evaluation and surgical planning. A total of 28 cases were reviewed thus, of which those that seemed clinically challenging in terms of diagnosis and management, and generated enough interest as well as dilemma to deserve special mention, have been emphasized in the following discussions.

Results

An overview of the epidermoid cysts in the head–neck region is summarized in Table 1, along with, in short, the patient profile and treatment offered. Cases were found more or less evenly distributed in the anatomical locations like the submandibular region, around the orbits, pinna, and the suprasternal region; though, some atypical locations like the midline sublingual region and along the anterior border of the sternocleidomastoid were also noted. The youngest patient we encountered was a 2-year-old male child with a suprasternal epidermoid cyst who also had bilateral 2nd arch branchial fistulas complicated by recurrent infection, and a pre-auricular sinus (Fig. 1). The sinus and the fistulous tracts were excised along with the dermoid cyst. The oldest patient was a 60-year-old man complaining of a long-standing ugly-looking swelling on his forehead that was clinically diagnosed as an epidermoid cyst. Though most of the patients were middle-aged, the

Fig. 1 In this 2-year-old child, the suprasternal epidermoid cyst (white arrow) is associated with bilateral 2nd branchial arch fistulas (black arrows) and a left-sided pre-auricular sinus (red arrow)

Fig. 2 An epidermoid cyst in the pinna

mean age was 30; this could be because epidermoid cysts of the pinna were seen all in children (Fig. 2). There was a definite male preponderance with the male: female ratio being 4.6:1.

The cystic mass in the midline floor of the mouth (sublingual region) was seen in a 23-year-old woman that was huge and disfiguring and extended inferiorly below the tongue through the floor of the mouth and palpable under the chin (Fig. 3a). The patient looked undernourished, and gave history of gradual progression of the mass for the last 10 years. The tongue was found atrophied, almost touching the palate, and the sublingual lesion gave an impression of a “double tongue”. Surprisingly, her chief complaints included difficulty in eating and speaking, but not respiratory distress. A clinical diagnosis of a huge ranula was made. FNAC however showed a mixed aspirate of turbid fluid and cheesy content with scanty epithelial cells. CT scan could not contribute much to the diagnosis, as it merely showed a homogeneous cystic lesion in the floor of the mouth surrounded by rim of muscles that were atrophied enough to obliterate the fascial planes, thereby failing to predict the exact disposition of the mass in relation

to the muscle plane. Nevertheless, we planned excision under general anesthesia. A prior tracheostomy was done as oral intubation was not possible. We removed the mass in its entirety by external approach (Fig. 3b), and no attachments were noticed with the hyoid bone or mandible. Hemostasis was secured and the dead space obliterated with surgical. Wound was closed in layers; a corrugated rubber drain was given. The mass after excision measured approximately $7.5 \times 6 \times 4.5$ cm. Histopathology revealed an epidermoid cyst (Fig. 3c). The patient recuperated well, but it took her some time to regain proper articulation and speech. Her general condition also improved on proper feeding, and she is currently on follow-up for the last 6 months with satisfactory results.

A similar case we encountered was that of a 36-year-old man who presented with a swelling in the left side of his neck below the chin that was gradually progressive for the last 5 years. Examination revealed a firm, 3×3 cm globular mass occupying the left submandibular region (Fig. 4a). It was non-tender, soft, non-pulsatile and bimanually palpable, occupying the left side of the floor of the mouth (Fig. 4b). Among the differential diagnoses, lymphoepithelial cyst, ranula and enlarged submandibular gland were considered. FNAC from the lesion revealed a turbid aspirate with few epithelial cells along with keratin debris. CT scan of neck showed a cystic space-occupying lesion above the mylohyoid muscle on the left. The mass was excised into-to via intra-oral approach (Fig. 4c), and measured about $6 \times 4 \times 3$ cm. Histopathological examination revealed an epidermoid cyst.

In this case-series, there were two cases that were associated with previous trauma (spontaneous and iatrogenic), thus were implanted in nature. The iatrogenic implantation epidermoid cyst was seen in a 19-year-old boy presenting with a swelling in front of his neck that produced, on-and-often a blackish, cheesy discharge through a small pin-point opening at its lower end. He had a history of laryngeal tuberculosis for which he had to undergo an emergency tracheostomy 10 years back. After receiving a full course of anti-Koch's therapy, and with symptomatic improvement, he was decannulated. However, 1 year later, he developed localized swelling in the tracheostomy scar that expelled foul-smelling blackish discharge. Three such episodes had occurred since then; each time the swelling appeared taking several months to develop, and relieved itself to get flushed with the surrounding skin. FNAC revealed scanty epithelial debris with denatured keratin. An implantation dermoid was diagnosed, and under local anesthesia, we excised the cyst along with its contents and tract (Fig. 5) and refashioned the scar tissue to close the wound. During the 6 months' follow-up, he did not develop any episode of similar discharge from the surgical site.

Fig. 3 **a** This huge disfiguring mass (*white closed arrow*) in the floor of the mouth of a 23-year-old woman pushes her tongue (*black arrow*) against the palate, and extends inferiorly to be palpable under the chin. There are also the typical “double chin” and “second tongue” appearances. **b** The mass is being removed via external approach. **c** Histopathological examination (hematoxylin and eosin, $\times 100$) reveals squamous epithelial lining of the cyst wall with keratin layers and debris

Fig. 4 The cystic mass is seen to occupy the left submandibular region (**a**) and intra-orally the left side of the floor of the mouth (**b**). The epidermoid cyst is being taken out into-to via intra-oral approach (**c**)

The other case of implantation dermoid was following an innocuous, long-forgotten trauma over the right eyebrow sustained in childhood in a 44-year-old woman who

presented with a mass between her right eyebrow and upper eyelid that gradually was gradually progressing for the last 7 years and resulting in cosmetic deformity with

restricted vision (Fig. 6a). On examination, the mass was soft-to-firm, non-tender, cystic, almond-shaped, about 2×1.5 cm in dimensions, appeared fixed underneath with free overlying skin. She had difficulty looking up. There was a small scar over her right eyebrow reminiscent of a childhood injury. On careful palpation, we felt a hiatus in the supraorbital rim laterally. CT scan (Fig. 6b) revealed a homogenous mass, almost isointense with the orbital fat, occupying almost the entire frontal sinus and causing inferolateral displacement of the globe. It appeared to originate from the right frontal sinus encroaching into the orbit by eroding the sinus floor. This seemed evident more so from the characteristic lipping of the dehiscence sinus floor. We made a provisional diagnosis of frontal mucocele and excised it following supraorbital approach. The histopathological report was found consistent with epidermoid cyst. The patient recuperated well, and was symptom-free in the 3 months' period of follow-up.

Another interesting case was that of a 23-year-old woman with a gradually progressing 3×3 cm firm mass in a relatively atypical position of neck, along the anterior border of the left sternocleidomastoid at the junction of the middle and the upper third (Fig. 7). It was tender, non-pulsatile, appeared fixed with the underlying structures but

Fig. 5 The epidermoid cyst along with the tract excised from the tracheostomy scar

Fig. 6 a This 44-year-old woman presented with a mass between her right upper eyelid and eyebrow, resulting in cosmetic deformity and restricted upward vision. A scar is also visible over the right eyebrow. **b** CT scan (coronal section) shows the mass almost isointense with the orbital fat, and dehiscence frontal sinus floor with lipping towards the orbital cavity

with free overlying skin. Other signs of inflammation were absent. An enlarged level II lymph node, probably reactionary to an underlying focus of infection, or a branchial cyst was considered. Her Mantoux test was negative, and the chest skiagram also did not provide any clue to the existence of an infective focus. Her ESR however was 50 mm in the 1st hour. FNAC from the lesion suggested an infected epidermoid cyst. Finally, it was excised under general anesthesia, and biopsy confirmed the FNAC findings.

Overall, 20 patients (71.4%) were managed by surgical excision. Patients with epidermoid cysts in the glabella and some in the suprasternal region were mostly concerned with the swelling itself, but were reluctant to go for surgery. In those cases, we only performed FNAC to get a preliminary idea regarding the nature of the lesion, along with the clinical perceptions.

Discussion

Cystic masses in the head and neck region are common presentations in the Otorhinolaryngology Clinic, and epidermoid cysts in the form of cutaneous lesions are traditionally said to occur most commonly in the face, scalp, neck and trunk [3]. But, in the deeper tissue planes, and as supported by a thorough review, both of recent and older literature, dermoid and epidermoid cysts in head and neck seem less common, constituting about 1.6–6.9% of all cases in the body [4]. In one retrospective study among 89 children, only 13.33% cases of head cysts were found to be epidermoid, compared to 58.88% of dermoid cysts [5]. Overall however, only 7% of all the epidermoid and dermoid cysts are found to occur in the head and neck area [6, 7], 1.6% in the oral cavity, and constitutes only 0.01% of all the oral cysts [7–9]. Out of the 1,495 cases of dermoid cysts seen by New and Erich at the Mayo Clinic, only 24 were seen intra-orally, in the floor of the mouth [10]. Again in one study, out of the 191 children treated for

Fig. 7 This 23-year-old woman presented with a 3×3 cm firm swelling in the lateral aspect of her neck, at the junction of upper and middle third of the anterior border of sternocleidomastoid

congenital cysts and fistula in the neck (excluding cystic hygroma and peri-auricular fistulas), only 21 were diagnosed as dermoid cysts [11]. Also, in a 20-year study, it has been shown that dermoid and epidermoid cysts consist of only 3.7% of all congenital non-salivary cysts of the suprahyoid neck in children [12]. Thus it seems, speaking from a strict histological perspective, epidermoid cysts are relatively uncommon in the head and neck region.

From a period of February 2008 to January 2011, we in our hospital—a teaching tertiary center, have encountered 28 cases of histologically proved epidermoid cysts. Partly because we seldom see such lesions in this region of the body, and consequently have a low threshold of suspicion for their diagnosis, and partly due to the other cystic masses that are often encountered here, in many cases we had faced considerable dilemma at arriving at the diagnosis and subsequent management. In certain instances, even CT scan was non-confirmatory in its details. We consistently tried to perform FNAC to get an idea regarding the pathological nature of the lesion, and though FNAC has often been rendered only as a corroborative evidence prior to surgery secondary to imaging [6, 13], even being considered non-diagnostic in few instances [14, 15], in our case-series, this was not always true. In fact, in some of the recent studies, the role of FNAC as an important tool in the diagnostic work-up in various epidermal lesions has been underlined and well-explored, like in nose and paranasal sinus masses that included epidermal inclusion cysts [16], in pediatric neck masses like dermoids, sebaceous cysts etc. [17], and in specific skin adnexal lesions like pilomatricoma [17, 18].

Dermoid cysts are generally seen in the midline [19, 20], in areas of embryonic fusion, either following sequestration of ectodermal tissue, or due to failure of separation of the ectoderm from the mesoderm during 3rd–5th weeks of gestation [21]. However, their most common location in the head–neck region is around the eyes, followed by dorsum of the nose and anterior aspect of neck [22]. In the

44-year-old woman with right-sided periorbital mass, the dilemma however was with the CT scan finding which gave an impression of a frontal mucocoele. The highly suggestive lipping of the floor of the frontal sinus also pointed out a lesion in favor of sinus origin encroaching into the orbit. However, the region of the frontonasal duct, which is typically involved in frontal mucocoele, was apparently free from pathology. Also, the periorbital and zygomaticofrontal regions are common sites for dermoid cyst, but the radiological findings seemed against it. Finally, with the help of FNAC and subsequent excisional biopsy, the lesion was found to be an epidermoid cyst. Thus the final impression stood, taking into consideration of a scar over the patient's eyebrow, as an implantation dermoid masquerading as a frontal mucocoele, with erosion of the frontal sinus floor.

Another patient also diagnosed as having an implantation dermoid was the 19-year-old boy, this time the cause being iatrogenic—a prior tracheostomy done about 10 years back. It is indeed quite unusual in the everyday clinical practice of Otolaryngology to see an implantation epidermoid cyst within a healed tracheostomy scar. There was considerable difficulty in excising the cyst along with its tract that was adherent with the surrounding fibrotic scar tissue.

The differential diagnoses of a clinically benign cystic lesion in the head–neck region include an array of developmental and acquired lesions, but those involving the floor of the mouth and neck are limited in number, namely, thyroglossal duct cyst, ranula, cystic hygroma, cystic lymphangioma, mucocoele, branchial cleft cyst, haemangioma [14] and infective lesions. However, the first clinical impression of the huge disfiguring cystic mass in the floor of the mouth described in the 23-year-old woman was that of a ranula. CT scan in this particular case was non-informative as the muscles in the floor of the mouth were compressed and underwent pressure atrophy, thus failing to provide us with any idea regarding the position of the mass and possible surgical approaches. Though the FNAC report tended to suggest something different, we embarked upon surgery with a firm belief on our clinical diagnosis. She required a prior tracheostomy as orotracheal intubation was not possible. The excised specimen assumed a dimension of $7.5 \times 6 \times 4.5$ cm. The histological examination, however, stamped it as an epidermoid cyst, with typical features of squamous epithelial lining and keratin debris without any hair follicles or appendicular remnants.

Epidermoid cyst in the floor of the mouth is rare; as mentioned earlier, dermoid and epidermoid cysts constitute less than 0.01% of all intra-oral cysts. General consensus regarding the embryologic explanation of midline epidermoid cyst in the floor of the mouth is that there is entrapment of epithelial cell rests during the fusion of the

2nd and 3rd branchial arches [1]. Alternatively, it may be a result of ectodermal differentiation of multipotent cells that had been pinched off during anterior neuropore closure [8]. Otherwise it could be a variant of thyroglossal duct cyst [1]. Irrespective of the etiology, such a cyst mostly remains asymptomatic and unreported until it assumes a size large enough to cause mechanical obstruction [8, 21], mostly in the age group of 15–35 years [2], as we have seen in our patient. Mass lesion above the mylohyoid pushes the tongue above causing mechanical obstruction, while that below it causes its protrusion into the chin, in front of the neck [15]. Surgical excision is the treatment of choice [6, 7, 13–15] and grossly, depending upon its position with respect to the muscle plane in the floor of the mouth, it may be removed either perorally (small sublingual lesions, above the geniohyoid) or externally (cervical approach; large lesions extending to the neck in the submandibular or submental region, or large sublingual lesion, when below the geniohyoid) [4, 15]. A combined approach may also be undertaken in huge lesions. The imaging in the patient we encountered did not provide us with a clear-cut indication for a definite surgical approach, and the lesion was large enough to extend from the palate to the chin. And we were clinically biased in favor of ranula, as it is a much more common entity than an epidermoid cyst in that region [15].

A similar lesion was encountered in the 36-year-old man, in the form a cystic mass in the submandibular region. Contrary to our earlier case, the lesion here was in the left side, and appeared more prominent externally on clinical examination. It posed a similar dilemma regarding diagnosis, and a cervical lymphoepithelial cyst or a plunging ranula was taken into consideration. However, the FNAC was suggestive of an epidermal cyst and subsequent CT scan clearly delineated its position with the muscle plane. Situated above the geniohyoid, the mass was excised into via intra-oral approach. On the other hand, the clinical appearance of a lateral neck cyst in a suggestive anatomical position may cause misinterpretation to a more common or obvious clinical diagnosis, like a cervical lymph node or an infected branchial cyst, as in the woman presenting with an almond-shaped mass in her neck at the junction of upper and middle third of anterior border of left sternocleidomastoid. It was only when FNAC was performed, followed by excisional biopsy that the true nature of the lesion could be identified.

These two cases enumerate the entity belonging to the group known as lateral cervical dermoid cyst. Dermoid cysts in such region are considered unusual [20]. They are considered to occur in the midline, though there are reports of dermoids occurring in the lateral aspect of the floor of the mouth [23, 24]. And in the strict histological sense, occurrence of an epidermoid cyst in the lateral cervical region is extremely rare. A thorough search through the

recent literature failed to put forward a case describing an epidermoid cyst in the lateral cervical region.

To conclude, epidermoid cysts are relatively less common lesions in the head–neck region, hence are liable to be misdiagnosed. The chance of diagnostic dilemma may assume manifold owing to the unusual and misleading clinical presentations. Having a high index of suspicion is thus mandatory. In contrast to the general opinion presumed from the study of the existing literature, we have found a preoperative FNAC more informative and guiding. Although CT scan ultimately becomes essential for surgical planning and post-operative follow-up, not in all cases it had helped us to delineate the anatomy and nature of the lesion. Above all, the variations and extraordinary presentations of the some of the cases in our hospital series on epidermoid cysts have added both to the dilemma as well as entertainment from the clinical point of view.

Conflict of interest None declared.

References

1. De Ponte FS, Brunelli A, Marchetti E, Bottini DJ (2002) Sublingual epidermoid cyst. *J Craniofac Surg* 13(2):308–310
2. Meyer I (1955) Dermoid cysts (dermoids) of the floor of the mouth. *Oral Surg Oral Med Oral Pathol* 8:1149–1164
3. Handa U, Kumar S, Mohan H (2002) Aspiration cytology of epidermoid cyst of terminal phalanx. *Diagn Cytopathol* 26(4):266–267
4. Jham BC, Duraes GV, Jham AC, Santos CR (2007) Epidermoid cyst of the floor of the mouth: a case report. *JCDA* 73:525–528
5. Armon N, Shamay S, Maly A, Margulis A (2010) Occurrence and characteristics of head cysts in children. *e-Plasty Open Access J Plast Surg* 10(May 22):305–312. www.eplasty.com. Accessed on 15 Mar 2011
6. Koca H, Seckin T, Sipahi A, Kaznac A (2007) Epidermoid cyst in the floor of the mouth: report of a case. *Quintessence Int* 38:473–477
7. Ozan F, Polat HB, Ay S, Goze F (2007) Epidermoid cyst of the buccal mucosa: a case report. *J Contemp Dent Pract* 3:90–96
8. Pancholi A, Raniga S, Vohra PA, Vaidya V (2006) Midline submental epidermoid cyst: a rare case. *Internet J Otorhinolaryngol* 4(2)
9. Kandogan T, Koc M, Vardar E, Selek E, Sezgin O (2007) Sublingual epidermoid cyst: a case report. *J Med Case Rep* 1:87
10. New GB, Erich JB (1937) Dermoid cysts of the head and neck. *Surg Gynecol Obstet* 65:48
11. Nicollas R, Guelfucci B, Roman S, Triglia JM (2000) Congenital cysts and fistulas of the neck. *Int J Pediatr Otorhinolaryngol* 55(2):117–124
12. Hsieh YY, Hsueh S, Hsueh C et al (2003) Pathological analysis of congenital cervical cysts in children: 20 years of experience at Chang Gung Memorial Hospital. *Chang Gung Med J* 26:107–113
13. Seah TE, Sufyan W, Singh B (2004) Case report of a dermoid cyst of the floor of the mouth. *Ann Acad Med Singap* 33:77S–79S
14. Burger MF, Holland P, Napier B (2006) Submental midline dermoid cyst in a 25-year-old man. *Ear Nose Throat J* 85(11):752–753
15. Tsirevelou P, Papamantinos M, Chloupidis P, Zourou I, Skoulakis C (2009) Epidermoid cyst in the floor of the mouth: two case reports. *Cases J* 2:9360. doi:10.1186/1757-1626-2-9360

16. Gupta N, Kaur J, Srinivasan R, Das A, Mohindra S, Rajwanshi A, Nijhawan R (2011) Fine needle aspiration cytology in lesions of the nose, nasal cavity and paranasal sinuses. *Acta Cytol* 55(2): 135–141
17. Connolly AA, MacKenzie K (1997) Paediatric neck masses—a diagnostic dilemma. *J Laryngol Otol* 111(6):541–545
18. Bhadani PP, Sen R, Bhadani UK, Karki S, Agarwal S (2007) Is fine needle aspiration cytology (FNAC) useful in skin adnexal masses? A study on 5 cases of pilomatrixoma. *Indian J Pathol Microbiol* 50(2):411–414
19. Dabholkar JP, Patole AD, Sheth AS, Saaj R (2003) Congenital cystic lesions in head and neck. *Indian J Otolaryngol Head Neck Surg* 55(2):128–130
20. Görür K, Talas DÜ, Özcan C (2005) An unusual presentation of neck dermoid cyst. *Eur Arch Otorhinolaryngol* 262:353–355
21. Mathews J, Lancaster J, O’Sullivan G (2001) True lateral dermoid cyst of the floor of the mouth. *J Laryngol Otol* 115:333–335
22. Bloom D, Carvalho D, Edmonds J et al (2002) Neonatal dermoid cyst of the floor of the mouth extending to the midline neck. *Arch Otolaryngol Head Neck Surg* 128:68–70
23. Sanal HT (2008) Ultrasound finding of dermoid cysts located in neck region: sack-of-marbles sign. *KBB Forum* 7(1). www.KBB-Forum.net. Accessed on 15 Mar 2011
24. Turki IM, Kaddour AK, Wann AR, Ginisty D (2005) Dermoid cyst of the submandibular space. *Fr ORL* 89:167–169