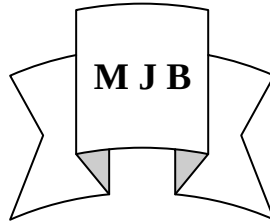


The Incidence of CT Scan finding of Concha Bullosa in Sinonasal Disease

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Abstract

Background And Purpose Concha Bullosa is an air pocket (pneumatization in the middle turbinate. Turbinate's are the part of your nose that warms and humidifies the air you breathe. Concha bullosa is a very common anatomical deviation. While it does not necessarily predispose you to sinus problems, persons with enlarged turbinates and concha bullosa may have a blockage which prevents their sinuses from draining properly resulting in frequent sinus infections. This condition may require surgical intervention. This surgery is generally done in a same day setting using an nasal endoscope .

The incidence of middle turbinate pneumatization, or concha bullosa, has been well described in the literature. However, to our knowledge, no study has evaluated concha bullosa in relation to sinonasal disease in our Babylon province/Hilla General Teaching Hospital/Otorhinolaryngology Depts. sought to analyze the incidence of concha bullosa and any correlation with Para nasal sinus disease.

Methods: A prospective study of 52 consecutive paranasal sinus CT studies conducted between February-July 2011 at Hilla general teaching hospital/Otolaryngology dept. All examinations were performed for evaluation of a symptom referable to the sinonasal region By endoscopic examination of the nasal cavities ,lateral wall structures, with coronal CT Scan of the sinuses in 3 mm slices anteroposteriorly. Paranasal sinus inflammatory disease including polyposis was identified and graded as mild, moderate, or severe. Sphenoid, ethmoid, maxillary, and frontal sinuses were each graded separately on both sides. If a concha bullosa was present, it was graded in size as small, moderate, or large. If bilateral concha were present, sizes were compared and when one was larger, it was identified as dominant. When nasal septal deviation was present, it was graded as mild, moderate, or severe. The direction of nasal septal deviation was identified as the face of the convex surface.

Results: There was a clear association between the presence of a unilateral concha, or a dominant concha (in the case of bilateral concha), and the presence of sinonasal disease($P < .0001$). Moreover, there was a significant relationship between the presence of concha bullosa and deviation of the nasal septal to the contralateral side ($P < .0001$). From 52 CT Scan of sinuses, there is 24 patient have variant types of concha Bullosa, 14 of patients with concha bullosa had paranasal sinus inflammatory disease. 14 cases are of Bullous type & 10 cases lamellar type. 18 cases are bilateral, 4 cases on the Rt. & 2 cases on the LT. (Fig.1,2,3)

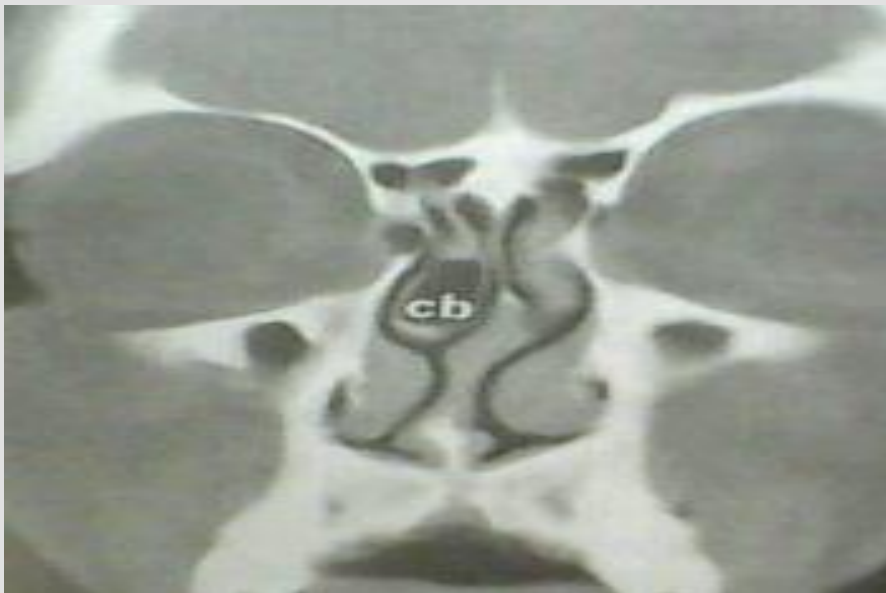
There is male predominance 16 male, 8 female. Age range from 18-60y. mosly between 30-40y

FIG 1,2, 3 Coronal CT scans showing variation in concha size with preservation of nasal air channels.

A, Coronal CT scan of the paranasal sinuses shows moderate-sized Lt. concha bullosa bilaterally, with the one on the left side being slightly larger, or dominant. both ethmoid and maxillary sinuses are inflamed.

B, Coronal CT scan of the paranasal sinuses shows moderate-sized concha bullosa bilaterally, with the one on the left side being slightly larger, or dominant. There is mild deviation of the nasal septum convexity to the right. Note that there is preservation of the air channels between each concha and the nasal septum. There is mucosal disease in both maxillary sinuses.

C, Coronal CT scan of the paranasal sinuses shows a moderate-sized bilateral concha bullosa with mild deviation of the nasal septum convexity to the right. There is mucosal disease in both maxillary sinuses.



Discussion

A prospective study of 52 consecutive paranasal sinus CT studies conducted between February-July 2011 at Hilla General Teaching Hospital / Otolaryngology. From 52 CT Scan of sinuses, there is 24 (41%) patient have variant types of concha Bullosa, 14 of patients with concha bullosa had paranasal sinus inflammatory disease. 14 cases are of Bullous type &

10 cases lamellar type. There is male predominance 16 male, 8 female (66%/33%). Age range from 18-60y. mosly between 30-40y .The Incidence in our study is (41%).

One of the explanations given for the wide reported incidence (14–53%) of concha bullosa, reports Zinreich S, Albayram S, Benson M, Oliverio[2] as assessed on the basis of CT findings, is that the definition of a concha bullosa

has varied among studies. Other reports as in have restricted the definition of a concha bullosa to those cases wherein the aeration extends caudally into the bulbous portion of the middle turbinate [2,3,5–13]. Because most otolaryngologist surgeons restrict the diagnosis of a concha to those cases that have pneumatization of the bulbous portion of the middle turbinate, we adapted the definition of a concha as a middle turbinate with pneumatization extending caudally at least 50% of the vertical height of the middle turbinate. This invariably brought the aeration into the bulbous portion of the turbinate and was an easily measured criterion on coronal CT studies (Fig 1). In our study, a concha was present in 41% of the cases and was unilateral or dominant in 25% of patients. Of these conchae.

Conclusions

- 1) Concha bullosa is a common anatomic variant. There is a strong association between the presence of a concha bullosa and contralateral deviation of the nasal septum,
- 2) No increased incidence of paranasal sinus inflammatory disease exists in patients with concha bullosa.

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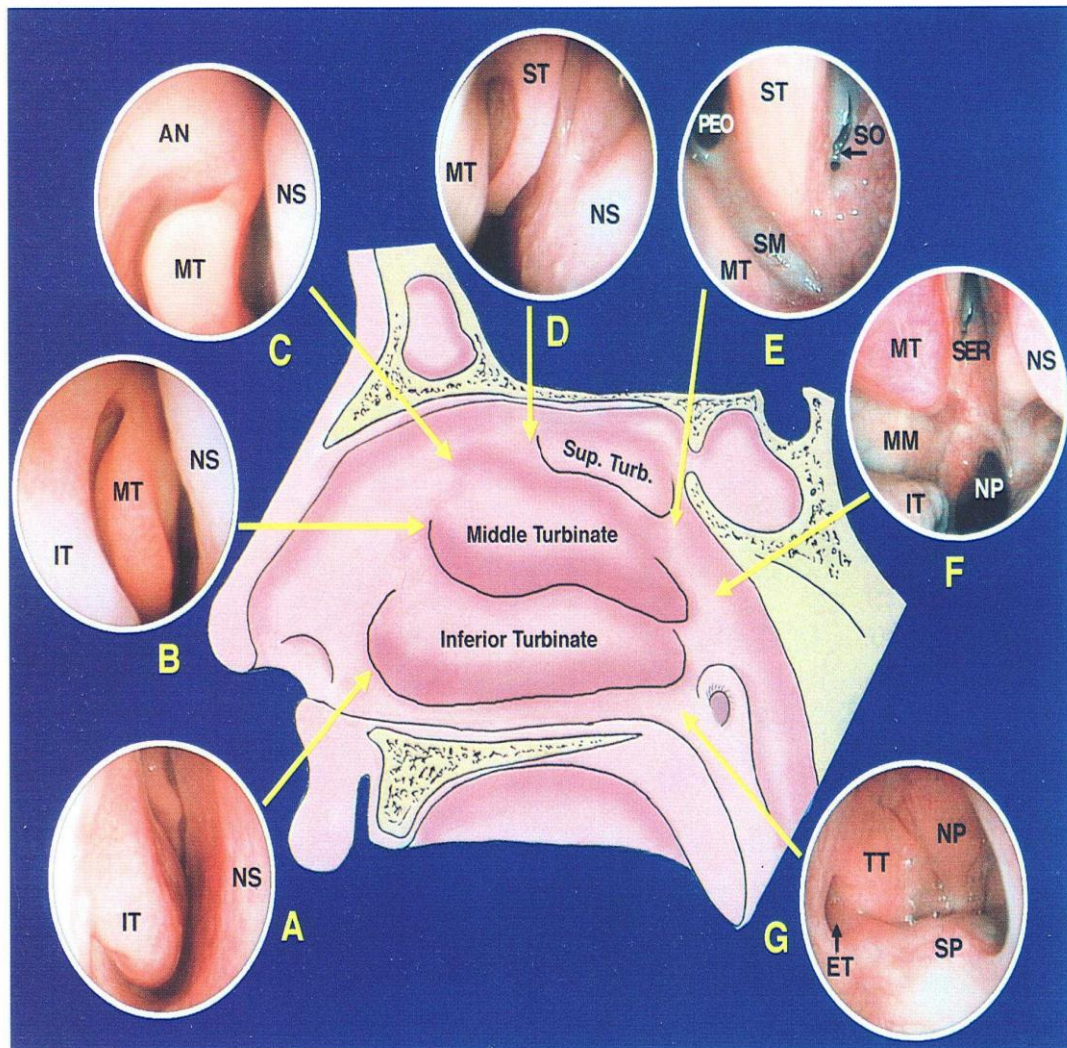


Figure 5-2. Endoscopic anatomy of the nasal cavity. This schematic drawing of the lateral wall of the nasal cavity shows the endoscopic anatomy of pertinent structures (all taken with a 4-mm 0-degree telescope). (A) Inferior turbinate, (B) middle turbinate, (C) agger nasi cell, (D) superior turbinate, (E) superior turbinate and superior meatus (PEO, posterior ethmoid sinus ostium; SO, sphenoid sinus ostium), (F) sphenothmoidal recess (SER) and related structures (MT, middle turbinate; NS, nasal septum; MM, middle meatus; IT, inferior turbinate; NP, nasopharynx), and (G) posterior nasal cavity and nasopharynx (ET, eustachian tube orifice; TT, torus tubarius; SP, soft palate).