

## ENT Manifestations in Pregnancy

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### Abstract

A hospital based cross-sectional study to evaluate the ENT manifestations in pregnancy included 100 pregnant women attending departments of Obst & Gynae and ENT, SMGS Hospital, GMC Jammu for ENT manifestations. In the present study, majority of pregnant women were primigravidas in age group of 21-30 years and mostly reported in third trimester. Out of 49 cases diagnosed with otological conditions, tinnitus was found in 10 cases (20.4%), ET dysfunction in 10 cases (20.4%) and least common was otosclerosis in only one case (2%). Out of 52 cases diagnosed with rhinological conditions, most common condition was epistaxis in 22 cases (42.36%), rhinitis in 15 cases (28.8%) and only one case (1.9%) of nasal pyogenic granuloma. Out of 30 cases diagnosed with laryngopharyngeal and esophageal condition, GERD was most common i.e. in 29 cases (96.6%) and dysphonia in only one case (3.33%). Out of 100, 11 cases were related to neck, out of which hypothyroidism was most common i.e. in 7 cases (63.6%). Out of 100, 17 pregnant women were reported with oral cavity conditions with 8 cases (47%) of dysgnesia, 2 cases (11.7%) of ulcerative stomatitis, 1 case each of gingivitis, pyogenic granuloma palate, pyogenic granuloma of gingiva, submandibular abscess and Parotid abscess. The changed hormonal milieu during pregnancy causes otological conditions leading to hearing impairment, epistaxis, rhinitis, GERD etc. Hypothyroidism is common as our area falls in the area of goiter belt.

### Key Words

ENT Manifestations, Pregnancy, Otological Conditions

### Introduction

Pregnancy is the time when lot of metabolic, endocrinological and physiological changes occurs throughout the body including ear, nose and throat. The changed hormonal milieu is responsible for these alterations whether physiological and pathological. The commonest manifestations related to ear is Eustachian tube (ET) blockade leading to SOM, AOM, CSOM leading to impaired hearing, development of sensori-neural hearing loss (SNHL) and worsening of pre-existing conditions like otosclerosis and meniere's disease. However, most of these diseases tend to return to normal once the pregnancy is over. Excessive water and salt retention in pregnancy due to hormonal changes leads to ET dysfunction either tubal dysfunction or patulous tube in 5 to 30 percent of patients (1). Women with tubal dysfunction complains of popping or clogged sensations in the ear with muffling of sounds. In severe cases, a serous effusion may develop. Women with patulous tubes usually manifest intermittent symptoms consisting of autophony and roaring sensations in their ears. This water and salt retention also causes low frequency SNHL and tolerance problem mimicking cochlear pathology. There

is a decrease in hearing level for 125Hz, 250 Hz and 500Hz, beginning in the first trimester and increasing over second and third trimesters. However, this low frequency hearing loss never reaches the pathologic levels and returns to normal in the postpartum period. In rare cases, severe preeclampsia can lead to sudden SNHL due to vascular occlusion of the microcirculation of the cochlea and auditory nerve by micro-emboli. Vertigo of meniere's disease worsens during pregnancy due to decline in serum osmolality during pregnancy and Tinnitus increases due to ET dysfunction or alterations in the inner ear fluid (2). Similarly, otosclerosis also worsens during pregnancy (3). Sudden SNHL may also be rarely seen during an uncomplicated pregnancy possibly secondary to the hypercoagulable state seen during pregnancy (4). Epistaxis during pregnancy may be more common due to increase vascularity of the nasal mucosa due to increase estrogen levels. Certain hyper-vascular lesions typically appear in the oral or nasal cavities during pregnancy like giant cell reparative granulomas of the maxilla and mandible, lobular capillary hemangiomas and nasal hemangiomas. These lesions involute following delivery or after

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termination of pregnancy (5,6). Rhinitis of pregnancy occurs in 5 to 32 percent of pregnant women and most commonly noted during the end of the first trimester. There is nasal obstruction with clear rhinorrhea and physical examination shows edematous nasal mucosa. It occurs due to increased vascularity and mucosal edema due to over activity of the parasympathetic system, resulting in increased glandular secretion and vascular congestion (7). The over activity of the parasympathetic system may be an allergic response to placental proteins, fetal proteins or a women's own sex hormones (8). Granuloma gravidarum or pyogenic granuloma is a vascular lesion that occurs in both mucosa and skin due to hormonal factors in pregnancy during first seven months. It often involves the gums in 75 percent cases and rest in the skin and nasal septum. The lesion may heal spontaneously after delivery (9).

Laryngopathia gravidarum is a term that has been used to describe the changes in laryngeal function seen during pregnancy. In the acute presentation, women are affected just prior to delivery and present with dyspnea, hoarseness, sore throat and odynophagia. Laryngeal examination reveals edema of the aryepiglottic folds, arytenoids and false cords with sparing of the true vocal cords. In the chronic form, the symptoms are similar but persistent, and may begin early in pregnancy (10). Cavertous haemangiomas of the larynx particularly develop in females during pregnancy. These may be in less than 5% of all pregnant females and the presumed stimulus for this growth is increased estrogen level during pregnancy (11). The pregnant women have a 3.3 times increased risk of developing idiopathic Bell's palsy which is more during the third trimester of pregnancy (12). This increased risk is due to edema of facial nerve and surrounding tissues due to increased interstitial fluid volume, which causes compression of the nerve and ischemia of the fallopian canal. The other major hypothesis is viral, as the gestational immunosuppression induced by rise in cortisol levels lead to reactivation of a latent herpes simplex virus. Gastroesophageal reflux disease (GERD) is estimated to occur in 30% to 50% of all pregnancies, with symptoms being most common during the last trimester. The pathophysiology of GE reflux involves primarily two factors, namely a decrease in lower oesophageal sphincter tone and an increase in intra-abdominal pressure. The decrease in sphincter tone has been attributed to increased circulating levels of estrogen and progesterone, which cause a reversible inhibition of lower oesophageal sphincter (LES) function. The increase in intra-abdominal pressure is secondary to the effects of the gravid uterus. Hyperthyroidism occurs in 0.1-0.2% women and is associated with an increased risk of maternal and fetal adverse effects (13). The

pregnancy has been associated with development of thyroid nodules or malignancy. Fine Needle Aspiration Cytology (FNAC) can show the diagnosis, as the thyroid scan is contraindicated. Hypothyroidism during pregnancy is also important to be recognized because of its strong association with perinatal mortality and congenital malformations affecting both mental and somatic development of the foetus (14).

#### **Material and Methods**

The study was conducted for a period of one year. The study included 100 pregnant women attending SMGS Hospital for ENT manifestations from all the three trimesters. All these pregnant women with ENT manifestations were subjected to detailed history, general physical examination and complete ENT examination.

The examination of nose includes examination of external nose and vestibule, Anterior rhinoscopy, posterior rhinoscopy, endoscopy (if required), functional examination of nose with testing for patency and smell.

Examination of ear includes examination of pinna, external auditory canal, tympanic membrane, middle ear and mastoid area, examination of eustachian tube and its patency, tuning fork test, facial nerve examination. Complete examination of oral cavity. Examination of throat includes external examination of Larynx, indirect laryngoscopy, flexible or rigid fibre-optic endoscopy if required, assessment of Cervical lymph nodes, examination of thyroid gland. Hearing was assessed by pure tone audiometry and hearing threshold was measured. Short increment Sensitivity Index and Tone Decay was performed wherever needed. Impedance audiometry was also performed. Routine investigations including Hb, BT, CT, TLC, DLC, Platelet count, PTI, RFT, LFT, Blood sugar and Thyroid function tests were done.

#### **Results**

In our study of 100 pregnant women, the maximum number of pregnant women i.e., 87% were in the age group of 21-30 years. The maximum no. of pregnant women i.e., 50% were primi, 34% were Gravida 2, 13% were Gravida 3 and 3% were > Gravida 3. Out of 100, the maximum no. of pregnant women i.e. 47% were reported in 3rd trimester, 32% in 2nd and 21% in the 1st trimester. Out of 100, 47% pregnant women reported with more than one condition, 21% with otological alone, 13% with rhinological alone, 7% with laryngopharyngeal conditions alone, 6% with oral cavity conditions alone and 6% with neck alone respectively. Out of 100, 49 pregnant women, who reported with otological conditions presented with either one or more than one otological symptoms, out of which most common was decreased hearing in 35 (71.4%) followed by ear discharge in 24 (48.9%), itching in 21 (42.8%), ear blockade in 20 (40%),

**Table 1. Distribution of Different Otological Conditions Diagnosed in Pregnancy**

Condition	No. of pregnant women	Percentage (%)
Tinnitus	10	20.40
ET Dysfunction	10	20.40
Otomycosis	6	12.24
Otitis externa+Otomycosis	5	10.20
CSOM	4	8.16
ASOM	4	8.16
Otitis externa	3	6.12
SOM	2	4.08
Bell's palsy	2	4.08
SNHL	2	4.08
Otosclerosis	1	2.04
Total	49	100.00

**Table 4. Distribution of Different Laryngopharyngeal Conditions Diagnosed in Pregnancy**

Condition	No. of pregnant women	Percentage (%)
GERD	29	96.66
Dysphonia	1	3.33
Total	30	100.00

**Table 5. Distribution of Different Neck Related Conditions Diagnosed in Pregnancy**

Condition	No. of pregnant women	Percentage (%)
Hypothyroidism	7	63.33
Acute suppurative lymphadenitis	2	18.18
Hyperthyroidism	1	9.09
Neck abscess	1	9.09
Total	11	100.00

earache in 11 (22.4%), tinnitus in 10(20.4%), clogging and popping in 10(20.4%), aural fullness in 6 (12.2%) and facial palsy in only 2 cases (4%). The otological conditions diagnosed in these 49 patients are mentioned in *table No. 1*. 52 pregnant women, who reported with rhinological conditions presented with nose bleeding in 23 cases (44.4%), nasal obstruction in 21 cases (40%), nasal discharge in 18 cases (34.6%), excessive sneezing in 17 cases (32.6%) and alteration of smell in 14 cases (26.9%). The rhinological conditions diagnosed in these 52 patients are mentioned in *table No. 2*. 17 pregnant women who reported with oral cavity conditions presented with either one or more than one symptoms. Most

**Table 2. Distribution of Different Rhinological Conditions Diagnosed in Pregnancy**

Condition	No. of pregnant women	Percentage (%)
Epistaxis	22	42.36
Rhinitis	15	28.84
Alteration of smell	14	26.92
Pyogenic granuloma	1	1.92
Total	52	100.00

**Table 3. Distribution of Different Oral Cavity Conditions Diagnosed in Pregnancy**

Condition	No. of pregnant women	Percentage (%)
Dysguesia	8	47.05
Ulcerative stomatitis+alteration of taste	2	11.76
Oral thrush+alteration of taste	2	11.76
Gingivitis	1	5.88
Pyogenic granuloma on palate	1	5.88
Pyogenic granuloma b/w incisors	1	5.88
Submandibular abscess	1	5.88
Parotid abscess	1	5.88
Total	17	100.00

common symptom was alteration of taste in 12 cases (70.5%), oral ulceration in 4 cases (23.5%), inflammation of gums in 3 cases (17.6%), bleeding from oral cavity in 3 cases (17.6%), pus from oral cavity in 2 cases (11.7%), white patches in 2 cases (11.7%) and swelling in 2 cases (11.7%). The oral cavity conditions diagnosed in these 17 patients are mentioned in *table No. 3*. 30 pregnant women who reported with laryngopharyngeal condition, presented with either one or more than symptoms out of which most common was heartburn in 22 (73.33%), followed by foreign body sensation in 16 (53.3%), waterbrash in 14 (46.6%), repeated clearing of throat in 14 (46.6%), sour eructations in 13 (43.3%), epigastric pain in 12 (40%), sore throat 12 (40%), difficulty in swallowing in 4 (13.3%), trismus in 2 (6.6%) and change in voice in 1 (3.3%). The laryngopharyngeal conditions diagnosed in these 30 patients are mentioned in *table No. 4*. The different neck related conditions diagnosed are mentioned *table No.5*.

### Discussion

In our study of 100 pregnant women, the maximum number is in the age group of 21 to 30 years (87%),

which corresponds to study of Singhai A *et al* (15) with 91% women in this age group. Maximum (50%) patients were primigravida corresponding with study of Singhai *et al*, (15) with 55% primi women. Tinnitus was present in 20.4% cases, which corresponds to study by Schmidt *et al*, (16) with 33% cases of tinnitus. ET dysfunction was reported in 20.4% cases which is comparable to study by Sharma *et al*, (17). ASOM and SOM were reported in 8.1% and 4% patients respectively in correspondence to study by Ahmed A *et al*, (18) with 10.1% and 4.3% cases respectively. Our study is in concordance with study by Lavi JA, (19) with reporting of only 2 cases of SNHL.

In our study, two cases of Bell's palsy were reported in third trimester which corresponds to study by Danielides *et al* (12) who found 6 cases during third trimester. Hassan AL-Husban *et al* (20) concluded that the peak onset of fascial palsy was in third trimester at 34<sup>th</sup> wk of gestation. Hence, it is found that third trimester is the most common period for onset of Bell's palsy in pregnant women which is similar to our study. Epistaxis was reported in 22 cases with maximum (63.3%) in third trimester which is similar to study of Purushothaman *et al*, (21) who also reported high incidence of epistaxis cases (52%) in third trimester. Rhinitis was reported in 28.8% cases which is similar study of Mabry RL *et al*, (8) with 24% cases. Our study found increased sensitivity of smell during 1<sup>st</sup> trimester of pregnancy like Whitefield P *et al*, (9) study. This may be due to increased levels of estradiol and due to swelling of olfactory membrane. Dysgeusia was found in 47% cases corresponding to study of Whitefield P *et al*, (9). Oral thrush was found in 11.7% cases which is similar to study by Sarifakioglu E *et al*, (22) with 15% oral thrush cases. Our study reported only one case of pyogenic granuloma of palate similar to study by Mahabob N *et al*, (23). Also one case of pyogenic granuloma of gingiva reported similar to study of Gomes SR *et al*, (24). Ahmed A *et al*, (18) also had reported one case of parotitis which is similar to our study. GERD was found in 29 cases with 51.7%, 27.5% and 20.6% cases in third, 2<sup>nd</sup> and 1<sup>st</sup> trimesters respectively which corresponds to study of Malfertheiner *et al*, (25) with 51.2%, 36.1% and 26.1% cases respectively in third, 2<sup>nd</sup> and 1<sup>st</sup> trimesters. In our study one case of change of voice was reported while Ahmed A *et al*, (18) reported 3 such cases. Hypothyroidism was reported in 7% cases which correspond to study of Singhai A *et al*, (15) who reported 9% cases.

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