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Review of cases of nevus of Ota: Rare presentation with suggested amendment of Tanino's classification

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Abstract

Introduction: Nevus of Ota or Oculodermal Melanocytosis is hyperpigmentation of facial skin in the distribution of the first & second divisions of trigeminal nerve. They are frequently associated with ipsilateral melanocytosis of the conjunctiva, sclera, cornea & uveal tract. Approximately 10% of cases are bilateral. We report a case of 80 year old female patient presenting with bilateral pigmented areas over all the three divisions of trigeminal nerve on both sides and also extending to hard palate, soft palate, buccal mucosa and nasopharyngeal mucosa. This patient also has bilateral open angle glaucoma.

Conclusions: Bilateral involvement is rare with nevus of Ota; involvement of such extensive nature along with bilateral open angle glaucoma has never been reported in the literature to the best of our knowledge.

Keywords: Buccal Mucosa, Bilateral Nevus of Ota, Hard Palate, Nasopharyngeal Mucosa, Oculodermal melanocytosis, Primary Open Angle Glaucoma, Soft Palate, Three divisions of Trigeminal Nerve

Introduction

Nevus of Ota (Oculodermal Melanocytosis) is a dermal melanocytic hamartoma that presents as bluish hyperpigmentation along the first or second divisions of Trigeminal Nerve.It is usually unilateral (90%) but can be bilateral in 5-10% cases. It has a significant preponderance among females with male to female ratio being 1:4.8. Cause of Nevus of Ota is unknown but female sex hormones have been suggested as a potent stimuli. Other stimuli such as infection, trauma or ultraviolet light exposures have also been reported to trigger the onset of nevus. The above factors have been proposed to stimulate the production of Melanin from amelanotic melanocytes leading to development of clinically apparent nevus.

Review of Literature

Oculodermal Melanocytosis was described by Hulkey in 1861. Pusey reported pigmented lesion of facial skin along with ipsilateral scleral pigmentation in a Chinese student in 1916.[1] Ota described this condition in 1939 as Nevus Fuscoceruleus Ophthalmomaxillaris[2,3] and in the same year, Tanino published a case series with a classification system and named it Nevus Fuscoceruleus Ophthalmomaxillaris of Ota.[4] In honour of the pioneering work done by Dr Masao Ota, the disease is now called Nevus of Ota.

In 1985, Page DG et al[5] reported associated palatal involvement with Nevus of Ota.

In 1990, Teekhaesanee et al[6] reported 194 patients with Oculodermal Melanocytosis, in which, there was dermal pigmentation along the Ophthalmic and Maxillary divisions of trigeminal nerve, episcleral pigmentation, nasal and buccal mucosal hyperpigmentation.

Hirayama et al[8] reported dermal pigmentation in Nevus of Ota in1991 and classified it on the basis of Histopathological features.

Gangopadhyaya KA[9] reported two cases of bilateral Nevus of Ota in 2000 with only dermal involvement.

Rathi SK[10] reported a case of bilateral Nevus of Ota in 2002 with Oral mucosa and Palatal involvement.

Kannan SK[11] reported two cases of Oculodermal Melanocytosis in 2003, one of which exhibited palatal pigmentation.

JR Turnbull et al[12] reported a rare case of a bilateral Nevus of Ota in 2004 associated with enoral melanocytosis in a white European person.

Sekar S et al[13] reported a series of 15 cases of Nevus of Ota in 2008. Most of the patients in this series had lesions at birth and mostly, patients belonged to Tanino class II type. Alae Nasii and Hard Palate was involved in three of their cases.

Gaurav Sharma[14] reported a 22 year old male patient in 2011 with U/L hyperpigmented macules on left midface with involvement of left side of Hard Palate.

Shishir Ram Shetty et al[15] reported a case of Nevus of Ota in 2011 withU/L Buccal Mucosal involvement.

Guledguv MV et al[16] reported right sided U/L Congenital Nevus of Ota in 2011 in a 36 year old female patient with involvement of right side of the posterior part of Hard Palate with no other abnormality.

AK Mukhopadhyaya[17] reported U/L Nevus of Ota with Bilateral Nevus of Ito and Palatal lesion in 2013

with proposed clinical modification of Tanino's Classification.

Mohan RP et al,[18] in 2013, reported a case of 25 year old female patient with U/L right sided facial hyperpigmentation with bluish coloured plaque on the entire buccal mucosa.

In 2014, RM Bhat et al[19] reported acquired B/L Nevus of Ota like macules with Hard Palate involvement in a 42 year old male patient.

Sehgal VN et al[20] in 2015, reported a case of 34 year old male patient with hyperpigmentation of upper right periorbital region and Hard Palate.

In 2015, Peeyush Shivhare et al[21] reported a case of Nevus of Ota with involvement of right side of upper and middle third of face with involvement of marginal and attached gingiva, right border of tongue and right side of hard palate with no other abnormality.

Rashmi Maheshwari et al[22] in 2016, reported a case of U/L Nevus of Ota in a 23 year old female patient with hyperpigmentation on the left side of face but with no Oral mucosal involvement.

In the present report, an 80 year old female patient presented to us with complaints of decreased vision in both eyes. Thorough examination of the patient revealed presence of hyperpigmented areas bilaterally over forehead, temples, malar area, cheeks, nasal bridge, alae nasii, jaw, zygomatic region, pinna and periorbital area. Conjunctiva and Sclera were also hyper pigmented on both sides. According to the patient, this hyper pigmentation was present since birth and she never sought any treatment for this, in the past. Endoscopic ENT Examination revealed bluish blackish pigmentation on hard palate, soft palate, buccal mucosa and Nasopharyngeal mucosa of both sides. There was similar pigmentation on the Pinna of both sides but no pigmentation was noted on Tympanic membranes.

Visual acuity of right eye was approximately finger counting at 2 meters and that of left eye was finger counting at 3 meters. Intraocular pressure of right eye was 26mm Hg and that of Left eye was 24mm Hg. Central Corneal thickness of Right Eye was 558µ and that of Left Eye was 540µ.

Conjunctiva and Sclera showed hyper pigmentation of both sides but, cornea & iris showed no hyper pigmentation. Gonioscopy of both eyes revealed open angles with hyper pigmentation of the angles.

Dilated pupillary examination revealed Nuclear and Cortical Cataracts in both eyes.

Fundus examination was hazy due to Cataract but Optic disc was hazily visible with Cup Disc ratio of 0.8 in Right eye and Cup Disc ratio of 0.7 in Left eye.

Patient was advised Topical anti-glaucoma medication and lubricating eye drops and was advised to undergo Combined Surgery of right eye first followed by left eye.

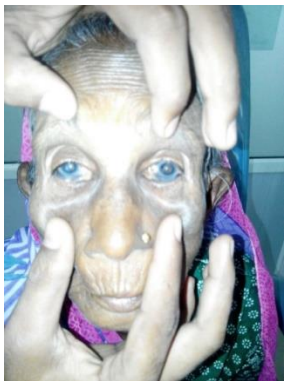


Fig. 1

Fig. 2

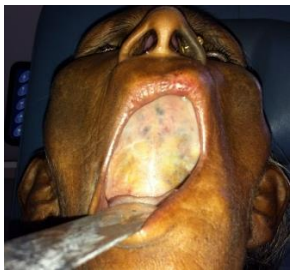
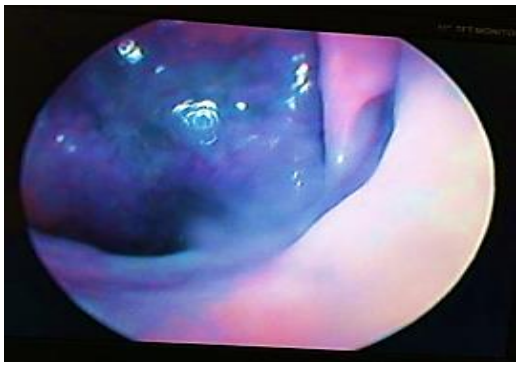


Fig. 3

Fig. 1-3: Photographs of patient showing bilateral extensive involvement of face, Palate(Hard & Soft Palate), Buccal Mucosa



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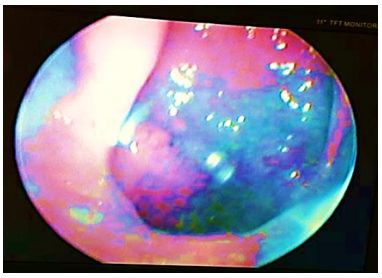

Fig. 5

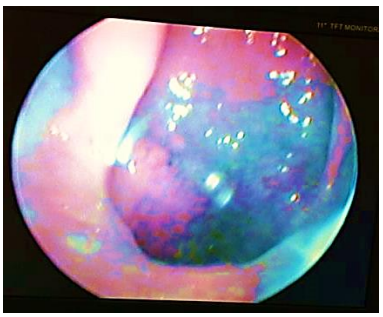

Fig. 6

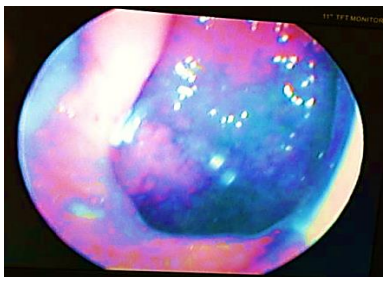

Fig. 7

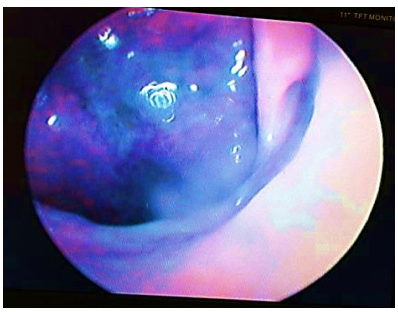

Fig. 8

Fig. 4-8: Photographs of Endoscopic view of Pharynx, Nasopharynx

Discussion

This nevus is caused by melanocytes that have not migrated completely from neural crest to the epidermis during the embryonic phase. Consequently, the melanocytes enter the ophthalmic & maxillary branches of the trigeminal nerve creating spots on consecutive regions.

The Nevus of Ota is mostly unilateral (90%) or may be bilateral (5 to 10%) and in addition to skin, it may involve ocular & oral mucosa. The Sclera is involved in two thirds of the cases causing an increased risk of Glaucoma.[22] Women are nearly five times more likely to be affected than Men. The prevalence seems to be highest in Japanese population (0.2 to 0.6%),[23] it affects 0.014-0.034% of the Asian population, and other ethnic groups with increased prevalence in Africans, African Americans and East Indians. It is very rare in Caucasians.

The first peak of onset of Nevus of Ota occurs in infancy with approximately 50% of cases present at birth. The second peak of onset for Nevus of Ota is seen during adolescence. Exact Cause of Nevus of Ota is unknown.[24]

Several classification systems and modifications have been described[6,13,14,22,23] since Tanino classified it first in 1939. Most of the dermatologist across the world still consider Tanino's classification best which is based on extent of cutaneous involvement. The classification system described by Huang et al[24] as "PUMCH classification of Nevus of Ota" (named after Peking Union Medical College & Hospital) appears promising and attempts to fill the gaps, more study is needed to establish it. Tanino's classification has been the most useful clinical classification based on the extent of Cutaneous involvement.

Tanino's Classification

IA: Upper/Lower Eyelid, Periorbital & Temporal region
IB: Infrapalpebral, Nasolabial fold & Zygomatic region
IC: Forehead
ID: Nasal
II: Over Upper & Lower Eyelids, Periocular, Zygomatic, Cheek & Temple
III: Scalp, Forehead, Eyebrow & Nose
IV: Bilateral

We propose an amendment to the above classification to include the Extracutaneous involvement in Nevus of Ota which is as follows:

Modified Classification

Type I to IV —As suggested in Tanino's classification
Type **V**—U/L Nevus of Ota with U/L Mucosal involvement
VA Ocular
VB Oral Mucosa involving either of Buccal Mucosa, Palatal (Hard and Soft) Mucosa, Nasopharyngeal Mucosa or
any other area
VC Nasal Mucosa
VD Tympanic, Aural Mucosa
VE Leptomeninges
Type **VI** B/L Nevus of Ota with U/L mucosal involvement
VIA Ocular
VIB Oral Mucosa involving either of Buccal Mucosa, Palatal Mucosa (Hard and Soft), Nasopharyngeal Mucosa or any other area
VIC Nasal Mucosa
VID Tympanic, Aural Mucosa

VIE Leptomeninges
Type **VII** B/L Nevus of Ota with B/L Mucosal involvement
VIIA Ocular
VIIB Oral Mucosa involving either of Buccal Mucosa, Palatal Mucosa(Hard and Soft), Nasopharyngeal Mucosa or any other area
VIIC Nasal Mucosa
VIID Tympanic, Aural Mucosa
VIIE Leptomeninges
Type **VIII** any of the above with other associations including complications like Cataract, Glaucoma, Choroidal

Melanoma, Orbital Melanocytoma, Optic disc, Hemangioblastoma, Meningeal Melanocytoma etc.

Diagnosis is mainly clinical & biopsy is rarely needed.

A careful Ophthalmologic examination and regular follow up should be done for patients of Nevus of Ota cases because of a reported 10.3% association with increased intraocular pressure.[7] Open angle glaucoma followed by Choroidal Melanoma remains the most common associated ocular finding of Nevus of Ota. The Glaucoma appears to be due to increased pigmentation of trabecular meshwork impeding aqueous flow. Other reported ocular findings with Nevus of Ota include thick corneas,[27] heterochromia iridis,[28] iris mammillations,[29] iris melanoma,[30] choroidal melanoma,[31,32,33,34,35,36,37] Orbital melanoma,[38-40] Orbital melanocytoma,[41] pigmentary mottling of fundus,[28,35,42] nevus at optic disc[28] and Optic disc hemangioblastoma.[43,44]

Although very rare, meningeal melanocytoma appears to be most common extra ocular association with Nevus of Ota.

Cosmetic camouflaging can mask the facial pigmentation and pulsed Q switched laser surgery is currently treatment of choice for Nevus of Ota.

Nevus of Ota can cause facial disfigurement resulting in Emotional and Psychological distress. Association of uveal melanoma & glaucoma makes it potentially sight threatening disease. Careful ocular examination at initial presentation and lifelong follow up is required to prevent visual loss.

Our Case belonged to Type VIII of Modified classification along with Cutaneous involvement as described in Tanino's type IA, B, C, D, II & III and along all three divisions of trigeminal Nerve, that too, bilateral with palatal mucosa, buccal mucosa & nasopharyngeal mucosa involvement along with bilateral Open angle Glaucoma and Cataract, making our case a rarity and the first one to be reported.

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