



Regular Carbamazepine Intake in Teen-age Pregnancy and Development of Natal Tooth: Clinico-forensic Relevance

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ABSTRACT:

Introduction: Teeth that are present at birth are termed natal teeth. The prevalence of natal teeth in western society is 1:700 – 1:30,000, the higher upper limit was established by a study involving personal examination of each case and hence deemed to be authentic. Gender, as a risk factor, remains controversial with no established figures. Similarly, geographic and dietetic correlations do not have a sound basis, either.

Results and Discussion: In this original work, the authors elaborate and duly discuss about development of natal tooth in a neonate born to a teen-age *primi* with certain clinical and potential forensic consequences and its relevance in Indian context.

Conclusions: The work merits attention because this is the first time that regular carbamazepine intake during pregnancy was *prima facie* linked with the development of natal tooth. Even as psycho-social stress caused to the socially stigmatized mother of such a baby may prove detrimental to her own physical and mental health; it can potentially lead her to self-harm and attempted suicide under certain extenuating circumstances especially in rural/semi-urban settings. Further studies on anti-epileptic and certain other drugs with their putative teratogenic effects are continuing under the supervision of the authors in a tertiary medical centre in North-west India affiliated to a state university based in Mathura, Uttar Pradesh (India) for the last few years.

1. Introduction

Teeth that are present at birth are termed natal teeth.¹ The prevalence of natal teeth in western society is 1:700 – 1:30,000, the higher upper limit was established by a study involving personal examination of each case and hence deemed to be authentic.² Gender, as a risk factor, remains controversial with no established figures. Similarly, geographic and dietetic correlations do not have a sound basis, either. Though hereditary component has been suggested especially in Tlinget Indians in Alaska, the rate of incidence is so dismal that this could be safely ignored. Besides, familial transmission of genetic factor responsible for this congenital anomaly could not be proved in other ethnic groups.

Historically, Titus Livius, in 59 B.C.E., considered natal teeth to be an omen of disastrous events. On the contrary, Caius Plinius Secundus (the Elder), in 23 B.C.E., believed that a splendid future awaited male infants with natal teeth, whereas the same phenomenon was

considered a bad portent for girls. In Poland, India, and Africa, false notions prevailed for a long time, and in many African tribes, neonates born with teeth were murdered soon after birth because they were thought to bring misfortune to all their contacts.³ The presence of natal teeth was considered a bad omen by the family of Chinese children, who believed that when these natal teeth would start to bite, one of the parents would die.⁴ Even in England, the belief associated with such babies born with natal teeth that they would grow to be famous soldiers, whereas in France and Italy the belief was that this condition would guarantee the conquest of the world. Historical figures such as Zoroaster, Hannibal, Luis XIV, Mazarin, Richelieu, Mirabeau, Richard III, and Napoleon may also have been favored by the presence of natal teeth.^{3,4,5}

In this intra-mural paper, authors discuss about development of natal tooth in a neonate with certain clinico-forensic consequence and public relevance. The mother RS, a *prima gravida* of average built, nutrition



and stature, aged about 17 years, was subjected to detailed sonographic examination by her Obstetrician on several occasions; the first time when gestational age by first day of the last menstrual period (LMP) was 16 w 3d. The anatomical profile indicated a biparietal diameter (BPD) of 31mm (compatible with a gestational age of 15 w 1d \pm 6d), femur length (FL) of 22mm (16w 2d \pm 6d), abdominal circumference (AC) of 81mm (15w 2d \pm 13d). Then, on next follow-up, when gestational age by LMP was 20w 5d, the anatomical profile indicated a biparietal diameter (BPD) of 44.5mm (19w 4d). These and three other sonographic evaluations, later on, did not indicate evidence of any apparent foetal congenital anomaly whatsoever. The foetal movements, heart sound and liquor pockets were within normal range. It appeared that the foetal growth was adequate corresponding to the gestational age. Registered at a separate OPD for high-risk ante-natal checkups, she was regularly monitored and investigated as per the high-risk ANC protocol. The hospital ANC records of the index mother showed no abnormal findings. There was no family/genealogical history of birth of any baby with natal teeth either on maternal or paternal side.

The mother herself, then, was an Indian teenager housewife belonging to a low socio-economic class

having low literacy level with no known history of addiction or drug abuse. For the past 15 months, she was regularly taking carbamazepine to control epileptic fits. She was taking one tablet Carbamazepine 200 mg twice daily with a supplement of Folic acid (5 mg) once daily as prescribed by her neurologist. She was seizure-free during the entire pregnancy and remains so up to now. There was no history of trauma or exposure to any other drugs and irradiation to the mother during the entire length of pregnancy. She delivered a male baby after 37 completed weeks by LMP with uneventful delivery through vaginal route at home assisted by elderly ladies of the household.

The baby, reportedly, cried immediately after birth. Having been delivered at home, birth weight and anthropometric records of the baby are obviously not available; the baby weighed 2.3 Kg on day 10 of life as per available records. Its recorded length, head and chest circumference were 51cm, 35cm and 34cm respectively. The baby had a single natal tooth, *i.e.* primary mandibular central incisor; the most common site for the eruption of natal teeth.⁶ With an uneventful neonatal period the baby attained all relevant developmental milestones appropriate for age.

PHOTOGRAPH-1: Natal Tooth in a male baby [Courtesy: Mother of the Baby, Ms. RS]



The preliminary work merits attention because this is the first time that carbamazepine intake during teen pregnancy was *prima facie* linked with the development

of natal tooth. Long term use of carbamazepine unabated in pregnancy had other effects on the foetus, namely microcephaly, neural tube defects (NTDs),



cardiac defects, hypertelorism, polydactyly, talipes, genitourinary defects, oral clefts and intra-uterine growth retardation (IUGR).⁷ Similarly, some authors indicate correlation between natal teeth and various syndromes like, Jadassohn-Lewandowsky, Ellis-van Creveld, Hallermann-Streiff syndromes, Pierre-Robin syndrome, etc.^{8,9,10,11,12,13,14,15}

The strongest evidence in favour of increased incidence of natal teeth is the environmental effect especially of polychlorinated biphenyls (PCBs)^{16,17,18,19} However, the affected babies do have associated symptoms, such as, dystrophic finger nails, hyperpigmentation etc. The baby was carefully examined and all such conditions and possible syndromal associations were excluded clinically.

2. Results and Discussion:

The single natal tooth was found to be fixed, pale yellow in colour but otherwise akin to the teeth of primary dentition. After a detailed examination, the dentist expressly advised against extraction of the natal tooth since it was neither causing suckling problem to the neonate nor to the mother during nursing. It was further advised to keep a watch for 4 months and in case of hypermobility the tooth needed to be extracted under LA. This was precautionary to the fact that hypermobility may suddenly dislodge the tooth leading to catastrophic condition like aspiration of tooth. The tooth survived and after six months the same was found to be firmly rooted to the alveolar.

The baby thrived gaining on weight approximately 750 gm each month. No adverse effect could be detected attributable to ingestion of carbamazepine in breast milk. Occasional lacerations on lower lip and frenulum along with minor traumatic ulcerations on the tip of tongue were the sole complaints recorded so far, which had been taken care of during follow up visits at the local well-baby clinic.

Natal Teeth with forensic relevance in sub-altern Indian society deserves in-depth and insightful analysis. Superstitious beliefs are found everywhere; immunity against them is at the lowest denominator. Macabre and bizarre objects arouse instant fear more potent than would be expected from otherwise benign manifestations. However, the sub-altern local version of such a superstition is abhorrent and at the same time beguiling. Babies with congenital defects in the form of dicephalus, iliothoracopagus, phocomelia, anencephalus, monster babies and alike generate instant apprehension especially in common rural Indians, and they tend to attribute such congenital anomalies and developmental defects to manifestation of the wrath of super-natural powers and sub-urban deities locally-adored. As such, natal teeth in India and elsewhere, according to extant folklore traditions, are also

considered a bad omen.²⁰ Such a belief is not uncommon that babies like these are seen as the virtual manifestation of supernatural forces or otherwise regarded as virtual custodians of their special prowess. At other times, these neonates become unfortunate objects of commerce. The first author knows a case of phocomelia intimately, who was sought after by people belonging to a famous circus company at an exorbitant price. The parents boldly refused to subscribe to the high price put on her. She has now grown up and could be seen waddling like a duck in the local neighbourhood.

Apart from the attendant ethical problems of stigmatising nature, faced by teenage-mother and her family, the affliction of "special manifestation" in this natal tooth neonate was stuck in the mother RS too. She became mildly psychotic though she had no previous history of any psychiatric problem whatsoever. Initially, she abhorred her child but later became awe-struck assuming that her child was a special being with potential prowess. On both these occasions, she shied away from the child and had to be literally cajoled to nurse the baby. However, her counselling was done continually by the author and things came under control. This aspect of human behaviour needs to be empathetically and professionally studied thoroughly. The grave forensic implications could have been either resulted into abandonment or severe neglect of the child, and in extreme cases, infanticide.²¹ Even as psycho-social stress caused to the socially stigmatized mother of such a baby could prove detrimental to her own physical and mental health; it might potentially lead her to self-harm and attempted suicide under certain extenuating circumstances especially in rural/semi-urban settings.

3. Conclusions

Even as psycho-social stress caused to the socially stigmatized mother of such a baby may prove detrimental to her own physical and mental health; it can potentially lead her to self-harm and attempted suicide under certain extenuating circumstances especially in rural/semi-urban settings. It is the duty of the physician to be empathetic in such cases; foresee and fore-plan appropriate strategy to counter such an eventuality in the larger interest of society, mother and the child in order to safeguard inalienable rights of a child and mother. Nevertheless, further studies are called for to elucidate putative linkage for causation of natal teeth and its potential socio-forensic consequences in Indian sub-altern classes in different settings.

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