

Early Eruption of Permanent Teeth in a nine year old Nigerian Child. A Case Report

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ABSTRACT

Variation in the normal eruption of teeth is a common finding, but significant deviation from established norms should alert the clinician to take some diagnostic procedures in order to evaluate patient's health and development. Disturbance in tooth eruption time could be a symptom of general condition or indication of altered physiology and craniofacial development. Several studies have shown variations in the timing and sequence of the emergence of permanent teeth among different population groups. Variations in the pattern of tooth emergence has been variously associated with age, gender, genetics, classes, although socioeconomic effects were more mixed for premolars and molars. Compared to their counterparts in the USA, Australia, Belgium, and Iran, Nigerian children from previous study showed an earlier mean age of emergence of all the permanent teeth studied. This article reports the eruption of all permanent teeth except the second and third molars in a 9 year old child who presented at our Orthodontic clinic. Patient is female and has a twin brother, and they are not identical. The eruption pattern in the twin brother is different from hers.

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INTRODUCTION

Information about the timing and sequence of emergence of the permanent teeth is an important resource for those managing the dental health of growing children (Diamanti & Townsend, 2003; Oziegbe et al., 2014). The data also have application in diverse fields such as physical anthropology, endocrinology, nutrition and forensic odontology (Demirjian, 1986). Tooth emergence and formation are useful indices in assessing dental maturation, measuring the timing of growth changes in dentition in the living (Moorrees, 1959), and for aging skeletal specimens when only the jaws remain (Moorrees et al., 1963). They are useful in comparing growth pattern between populations or species (Liversidge, 2003).

Sexual differences have been reported in the order of emergence and mineralization of teeth, and in the order of tooth development between individuals (Sofaer et al., 1971; Harris & McKee, 1990). Previous studies (Kocher & Richardson, 1998; Eskeli et al., 1999; Moslemi, 2004) reported that girls precede boys in emergence of the permanent teeth.

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Previous Nigerian study reported that, all the teeth emerged earlier in girls, with the greatest difference being in the mandibular canine (Oziegbe et al., 2014). Early emergence of permanent teeth in girls has been

attributed to earlier onset of maturation (Oziegbe et al., 2014).

When the mean emergence ages by tooth were compared with that of other national population groups, Nigerian children had an earlier emergence age for all permanent teeth than their counterparts in the USA, Iran, Belgium, and Australia (Diamanti & Townsend, 2003; Leroy et al., 2003; Moslemi, 2004; Oziegbe et al., 2014). Nigerian children were also earlier in the emergence of most permanent teeth than children from Pakistan. Previous study (Lavelle, 1976) among black and white citizens of England with similar socioeconomic and environmental background, showed that the teeth of blacks emerged before those of whites. This may suggest significant genetic influence on variations in odontogenesis (Oziegbe et al., 2014). Previous study (Roberts et al., 1986) also recognized that teeth normally develop and erupt at an earlier age in females than males. Most of the permanent teeth develop prior to puberty, which occurs at a mean age of 11.6 years in males and 11.0 years in females (Styne & Grumbach, 1978). Prior to the onset of puberty, oestrogen secretion is relatively low in females. However, the initiation of puberty results in an elevated level of estrogen production by the ovaries. The female child who experiences precocious puberty produces an increased estrogen level prior to the age of 8 years and as early as 1 year of age (Roberts et al., 1986). These suggest the hypothesis that estrogen may have a biphasic effect on the developing dentition. It

may accelerate tooth development at prepubertal levels, explaining the earlier tooth eruption in girls compared to boys, but retard development at the elevated levels associated with puberty. The third molars are the only teeth primarily formed post puberty (Moorrees, 1963; Roberts et al., 1986).

CASE REPORT

A 9 year old girl presented at our clinic for routine dental examination and prophylaxis. Review of the patient's medical, dental and family histories revealed patient has not reached puberty (her menses has not commenced), and she has a twin brother. On examination, there was proclination of the maxillary central incisors with an overjet of 6mm, no facial asymmetry and a mild class II skeletal profile. Teeth present were the maxillary and mandibular permanent incisors, canines, premolars and first molars. Clinical photographs, frontal view (Figure 2a) and maxillary (Figure 2b) and mandibular (Figure 2c) occlusal views were also done and showed teeth present. The standard occlusal radiograph of the maxillary arch (Figure 3) showed all permanent teeth except the second and third molars as observed during clinical examination. This finding is very unusual and her twin brother did not show similar early dental maturity. He still had the primary canines and second primary molars present. Patient is to undergo orthodontic treatment to correct proclination of upper central incisors.

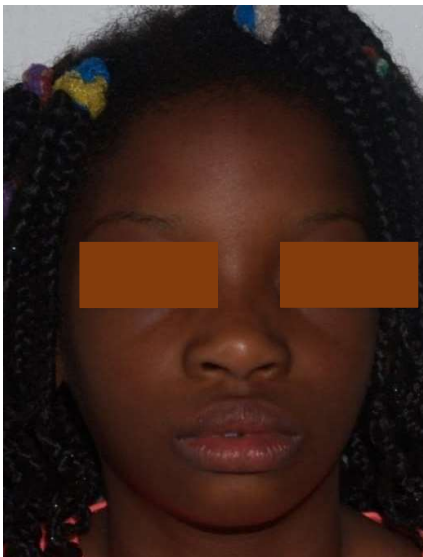


Figure 1 Clinical photograph (face)- Frontal view, non smiling



Figure 2a Intra oral photograph- Frontal view



Figure 2b Intra oral photograph- upper occlusal view



Figure 2c Intra oral photograph- Lower occlusal view



Figure 3 Standard upper occlusal

DISCUSSION

The elaborate knowledge of permanent tooth eruption is of major importance for dentists working especially in the fields of paedodontics and orthodontics. The knowledge of normal tooth eruption and its variation is critical for diagnosing eruption disorders and in making a treatment plan (Eskeli et al., 2016). By comparing the tooth emergence of a child to the timetable of normal tooth eruption in a population, it is possible to determine whether the eruption of the permanent teeth of the child is within normal limits of population-based standards or if there is a reason to expect early or delayed development of the dentition or even to suspect a developmental disorder. The clinical maturation stage of a permanent dentition is determined by how many permanent teeth have erupted in a child's mouth by a specific age. In previous studies, a tooth has been considered erupted when one of its cusps or incisal edge has penetrated the oral mucosa (Diamanti & Townsend, 2003; Lakshmappa et al., 2011; Shaweesh, 2012). A variety of factors has been reported to influence permanent tooth emergence (Almonaitiene et al., 2010). Genetic factors play a major role in tooth emergence, which results in

tooth emergence between different ethnic groups (Almonaitiene et al., 2010).

CONCLUSION

In conclusion, we present the case of eruption of all permanent teeth, except the second and third molars in a 9 year old female Nigerian child. There was no similar occurrence in her twin brother. The cause of this phenomenon is not clear but may be due to earlier onset of maturation in the child.

Source of support

None

Conflict of Interest

None

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