these in turn originate with board members and the association membership. Therefore, I would like to conclude by encouraging professional researchers and graduate students in dental anthropology and allied fields to strive to develop the practice of periodically sending the editor (A.M. Haeussler) brief news up-dates regarding your current or recently completed research projects, conferences attended, and newly published literature. Reviews or notices of new equipment, new books, and new software relevant to research in dental anthropology, and parallel fields such as paleontology and dentistry will be much appreciated. The editorial board will work to solicit review articles on the development of dental anthropology in regions of the world and in specific subject areas that are not yet well represented in the newsletter. Achieving these new aspirations and goals for the newsletter will require service and dedication from the board and the membership, but if the growth of the past is any indication, the next ten years of the newsletter should witness even greater levels of accomplishment and prosperity. Suggestions for articles, news, and reviews can be sent to A.M. Haeussler (editor) or me ("JRLukacs@Oregon.Uoregon.edu").

'Mesiodens' in India: A Brief Review of Hyperdontia with New Frequency Data for Castes and Tribes of South Asia

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BRIEF REVIEW OF HYPERDONTIA

Any increase in the number of teeth from the normal primary or permanent complement is known as hyperdontia (Burzynski and Escobar, 1983). The presence of extra or supernumerary teeth is also known as polydontia or polygenesis, though the term hyperdontia is more widely used (Hillson, 1986). Supernumerary teeth may display anatomical characteristics of the tooth class with which it is associated (supplemental teeth), or more frequently, they are of aberrant shape, commonly assuming a simple conical form (Cawson, 1970). The etiology of hyperdontia has been attributed to: 1) an atavistic tendency toward the early primate or mammalian dental complement (Dahlberg, 1945); 2) hyperactivity of the dental lamina, producing additional tooth germs (Scott and Symons, 1989); or 3) dichotomy or division of tooth germs, resulting in more than one tooth (Braham and Morris, 1980). While hyperdontia is relatively rare and occurs in all tooth classes, the maxillary anterior region and molar segments of the dentition are most commonly affected (Tay et al., 1984). Only 10% of all supernumerary teeth occur in the mandible (Brand and Isselhard, 1990). Numeric anomalies (hypodontia and hyperdontia) of the dentition are more typically found in the permanent than in the primary dentition (Brand and Isselhard, 1990; Scott and Symons, 1989). Genetic syndromes with dental numeric defects more frequently display hypodontia (36 syndromes) than hyperdontia (6 syndromes) (Shapiro and Farrington, 1983). Hyperdontia occurs in approximately 0.5% of children, and is reported to be more prevalent in males than in females (Grahnen and Granath, 1961). The prevalence of hyperdontia varies significantly by ethnic group and by age structure of the study group. Supernumerary teeth have a frequency of 0.1% among school children in Jerusalem (Rosenzweig and Garbaski, 1965), while Japanese children exhibit a frequency of 3.8% (Niswander and Sujaku, 1963). One report found a prevalence of 0.9% in adults, while another documented 2.0% prevalence in a sample of children between one and nine years of age (Millhon and Stafne, 1941; Stafne, 1932).

'Mesiodens' is one of the variety of specialized terms that have been employed to refer to supernumerary teeth by position in the dental arcade. Supernumerary teeth that occur between the maxillary central incisor teeth are known by the term 'mesiodens' (Bolk, 1917; Burzynski and Escobar, 1983). 'Mesiodens' are often palatally displaced and routinely appear in the mid-sagittal or para sagittal plane. Consequently, Brand and Isselhard's (1990:284) definition of 'mesiodens' as "supernumerary teeth arising in the midline of the maxilla." is perhaps a more appropriate one. Abnormal development or orientation of 'mesiodens' may result in perforation of the nasal chamber or the tooth assuming a position adjacent to it. Such teeth are often referred to as nasal teeth (Alt, 1990; Chopra and Joshi, 1969; Morley and Tompson, 1983). The oldest documented case of 'mesiodens' has an antiquity of 13,000 years (Sutton, 1985). Genetically 'mesiodens' has been interpreted to show an autosomal dominant mode of inheritance with reduced penetrance (Sedano and Gorlin, 1969), but autosomal recessive and additive polygenic mechanisms have also been suggested (Alt, 1990). 'Paramolar' is the term assigned to supernumerary teeth and tubercles that occur in association with the molar region. Both types of

supernumerary teeth show significant inter-population variation, suggesting a genetic influence on these traits. For example, paramolars are reported to be infrequent among Africans, Europeans, and their descendants in America, while in a group of native Americans from the southwest (Pima) paramolars are much more common (Dahlberg, 1950).

Case reports of nasal teeth (Rao, 1953; Sinha et al., 1986) and clinical descriptions of 'mesiodens' are available for people of India in the medical and dental literature, and anthropological studies of supernumerary teeth have been conducted in several Indian populations: Bengalis of eastern India (Pal, 1964: 2.0%, n=347), the Vysyas of Andhra Pradesh (Reddy and Vijayakumar, 1978: 0.25%, n=400), Muslims of Andhra Pradesh (Reddy et al., 1981: 2.35%, n=850), and the people of Gulbarga, Karnataka (Reddy, 1982: 0.52%; n=3656). However, a specific analysis of the prevalence of 'mesiodens' among Indian ethnic groups with distinct bio-cultural characteristics has not been previously conducted. A systematic analysis of the dental morphology of nine ethnic groups from the Indian subcontinent recently produced new data on the prevalence of 'mesiodens' in this heavily populated but poorly studied part of the world. Dental study models were made in three geographic regions of the subcontinent (northwest, central and southeast) and in three social groups (high and low caste Hindu, and non-caste tribal) in each region. Bio-data, anthropometric measurements and dental study models were acquired for male and female representatives of each group (approximately 100 of each sex), yielding a total study sample of nearly 1800 individuals (see Lukacs and Hemphill, 1993 for field methods). The name, status, and region of the study groups are provided in Table 1. At the University of Oregon Bio-Anthropology Lab, under consistent oblique lighting, each study model was examined for numeric anomalies of the dentition. As this study is based upon plaster dental study models, only erupted 'mesiodens' were counted. Radiographic assessment of unerupted 'mesiodens' was not feasible in field locations in India. The frequency data reported below should therefore be regarded as underestimating the true incidence of 'mesiodens.'

TABLE 1. Social and geographic distribution of sample.

Region	High Caste	Low Caste	Tribal
Northwest	Rajput	Garasia	Bhil
Central	Maratha	Mahar	Gond
Southeast	Reddy	Madiga	Chenchu

NEW FREQUENCY DATA FOR CASTES AND TRIBES OF SOUTH ASIA

The prevalence of 'mesiodens' in these samples is presented by sex, social group, and region in Table 2. The overall prevalence in the complete sample is 0.52% (9/1743), however a clear trend is discernable in regional samples such that 'mesiodens' frequency gradually decreases from the northwest (0.81%), through the central region (0.58%) to the southeast (0.18%). This pattern is largely attributable to the consistent decline in 'mesiodens' prevalence among the low caste groups, Garasia, Mahar, Madiga, from northwest to southeast. No significant sex difference is evident in 'mesiodens' prevalence when data for the sexes are pooled across all regions and social groups (male 0.51%; female 0.52%). The prevalence of 'mesiodens' in caste and tribal groups of similar socio-religious status, but from different geographical regions, is presented in Table 3. In this comparison the composite low caste group displays the highest prevalence of 'mesiodens,' while the high caste group exhibits the lowest frequency, and tribals display intermediate values. The anatomical form of these 'mesiodens' is simply conical in 7 cases (77.7%). One complex conical (tri-lobed) and one incisiform 'mesiodens' were also observed. The mean mesiodistal (MD=5.2, sd=0.5, n=7) and buccolingual (BL=5.4, sd=0.7, n=5) crown dimensions of measurable conical 'mesiodens' attests to their cylindrical appearance. The atypical tri-lobed 'mesiodens' is oval in shape and substantially larger (MD=8.2, BL=6.7) than the more common

TABLE 2. Mesiodens frequency in South Asian samples (+/n; %).

Region	Group	Female	Male	Total
Northwest	Rajput	0/59; 0.00	1/149; 0.67	1/208; 0.48
	Garasia	2/96; 2.08	1/105; 0.95	3/201; 1.49
	Bhil	0/105; 0.00	1/103; 0.97	1/208; 0.48
	Combined	2/260; 0.77	3/357; 0.84	5/617; 0.81
Central	Maratha	0/99; 0.00	0/101; 0.00	0/200; 0.00
	Mahar	1/96; 1.04	1/99; 1.01	2/195; 1.03
	Gond	0/74; 0.00	1/99; 1.01	1/173; 0.58
	Combined	1/269; 0.37	2/299; 0.67	3/568; 0.53
Southeast	Reddy	0/82; 0.00	0/100; 0.00	0/182; 0.00
	Madiga	1/82; 1.22	0/97; 0.00	1/197; 0.56
	Chenchu	0/86; 0.00	0/111; 0.00	0/197; 0.00
	Combined	1/250; 0.40	0/308; 0.00	1/558; 0.18
All Samples		4/779; 0.51	5/964; 0.52	9/1743; 0.52

TABLE 3. Mesiodens frequency by social group (+/n; %).

Sex	High Caste	Low Caste	Tribal
Male	1/350; 0.29	2/301; 0.66	2/313; 0.32
Female	0/240; 0.00	4/274; 1.46	0/265; 0.00
Total	1/590; 0.17	6/575; 1.04	2/578; 0.32

and smaller cone-shaped form. In all but two cases the 'mesiodens' resulted in displacement or rotation of one or both central incisors.

The prevalence of 'mesiodens' for the entire sample of Indian castes and tribes (0.52%) falls well within the range of values reported for this trait in Europeans (0.15% to 1.4%; Pindborg, 1970; Primosch, 1981; Sedano and Gorlin, 1969). A recent study of 'mesiodens' among the tribal Paiwan of Formosa revealed an overall prevalence of 1.28% (5/390), but while females lacked the trait the male prevalence was 3.3% (5/152) (Takei et al., 1989). The sex difference in 'mesiodens' prevalence observed among the Paiwan of Formosa is similar to samples from Japan and India (Perry and Iyer, 1961), though male Japanese are reported to exhibit lower prevalence for the trait. In four of the five Formosan cases 'mesiodens' displayed a conical form, one case appeared incisiform. A radiographic study of premaxillary supernumerary teeth among medieval Norwegians (1100-1600 AD) excavated from the graveyard at St. Olaf's church, Trondhiem, yielded a prevalence of 1.4% (2/140), consistent with values reported for other medieval and modern Nordic populations (Stermer-Beyer-Olsen, 1989).

In preparing this article a Medline search on 'mesiodens' was conducted yielding a total of 110 articles published between 1966 and the present (1966-74, 37; 1975-79, 9; 1980-84, 19; 1985-89, 23; 1990-present, 22). Most of these sources consist of individual case reports documenting the influence of 'mesiodens' on occlusal variation and their bearing on tooth migration and eruption theories (Sutton, 1985). Others consider associated dental anomalies (cysts, impaction, nasal eruption, etc.) (Mehrotra, 1966). Fewer studies are anthropological in nature (Castillo-Kaler, 1986; Gadbois, 1969; Kaler, 1988).

Reports that document the prevalence of 'mesiodens' are often based upon clinical samples that are ethnically heterogeneous, yet the inter-group variation reported here for castes and tribes of India suggest that this procedure is inappropriate. Although sex dimorphism in 'mesiodens' prevalence was not found in this Indian study, sex differences can be substantial and require that prevalence rates be reported separately for males and females. Another potential bias is that clinical samples consist of people seeking dental health care, and may not represent a random sample of the general population. For these reasons, dental anthropologists are encouraged to collect and report data for numeric anomalies of the dentition among ethnic groups whose biological and cultural identity is known in some detail. The value of prevalence data for human biological variations is greatly diminished when presented in the absence of a firmly established bio-cultural context.

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DENTISTRY IN ANCIENT EGYPT: JUNKERS' TEETH

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ABSTRACT The earliest known example of dental ligature was excavated from the Egyptian site of Cheops by Junker. Made of gold, the wire unites two molar teeth. For comparative purposes, we present two other molar teeth with the same occlusal wear surface. The teeth came from an Egyptian mummy recently autopsied.

INTRODUCTION

Dentistry may be defined as the art or practice of treating dental injuries and disorders by manual operation or instrumental appliances. Direct archaeological evidence of the occurrence of dentistry in ancient Egypt tends to excite rivalry between advocates of effective methods of dental treatment and those who believe that the exhibited evidence are the result of wishful thinking. Such partisanship is largely prejudiced, since both are present. While arguments against human intervention in the case of bone holes which accompany abscess formation are convincing (Leek, 1967), at least one case, known as "Junkers' teeth," is to be accepted (Fig. 1).

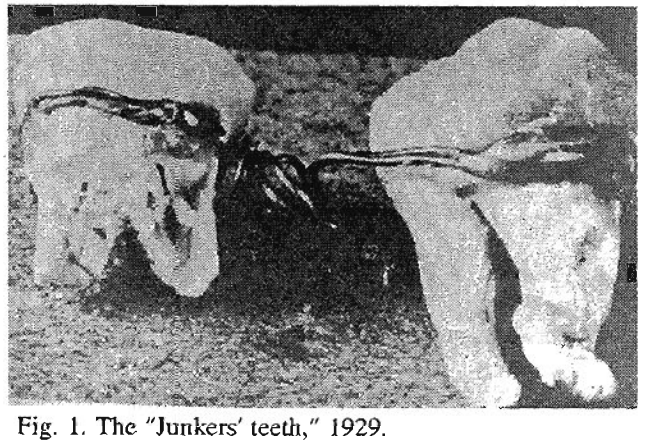

Fig. 1. The "Junkers' teeth," 1929.

HISTORY

The three Giza pyramids of Mycerinus, Chephren and Cheops dominate the view at the edge of modern Cairo. These great ancient funerary monuments stand as an awesome reminder of the power of the pharaohs. A city of tombs arose around each pyramid. Each was used by members of the royal family or by a family promoted by the pharaoh.