The path less taken

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Craniofacial research has 'de facto' multidisciplinary dimensions. It is rather difficult, even hazardous, to attempt to enumerate all the specialties and superspecialties linked with craniofacial research, lest one should omit a few important ones and eventually invite explosive criticism. Broadly speaking, the most widely known disciplines are Reconstructive and

Aesthetic/Cosmetic Surgery, Pediatric Surgery, Otorhinolaryngology Maxillofacial Surgery, Oral Biology, Orthodontics and Dental Orthopedics, Pedodontics, Anatomy, Embryology/Development Biology, Teratology, Genetics and Anthropology.

Complete sequencing of the human genome accomplished at the dawn of the twenty first century has fueled explosive growth in Developmental Biology which is bound to impact upon the practice of medicine and dentistry in this new millennium. Human Embryology most accurately reflects this impact since it combines the basic and clinical sciences of genetics, ontogeny, phylogeny, teratology and syndromology into the essence of modern medicine and surgery. The previously esoteric subject of embryology has recently vaulted into clinical consciousness in the wake of 'in vitro fertilization', chorionic villous sampling, amniocentesis, prenatal ultra-sonography, intra-uterine surgery and stem cell therapy. All these aforementioned subjects require intimate knowledge of the different stages of development.

Of all the subjects listed in a survey of current MBBS and BDS curricula, no mention is made of human embryology or Developmental Biology. While it is accepted that this important topic might be covered under General

Anatomy and Histology, Gross Anatomy or even possibly Head and Neck Anatomy. The omission of embryology as a significant and identified basic science along with genetics is an indictment of the past century's undergraduate medical and dental curricula.

Consequently, human embryology, as a minor component of 'anatomic sciences' is currently taught in 35 lectures during the first year MBBS and 28 lectures for first year BDS courses respectively. In the face of torrent of information on molecular biology, genetics and reproductive technology that is influencing our twenty first century medical and dental curricula, it is self-evident that embryology should be one of its sine qua non components. It is too well-known that the basis for understanding the mechanisms underlying normal and abnormal development is inherent in embryological education and certainly provides insights into the organization of adult anatomy and its aberrations, commonly recognized as syndromes. The delineation of syndromes is largely determined by dysmorphogenesis, based upon understanding ontogenesis. The American Cleft Palate–Craniofacial Association has recently established a core curriculum that explains the syndromes with which its members and enquiring public are concerned. An understanding of embryology and development of craniofacial syndromes are key components of its curriculum. Thus the necessity of clinicians to be educated in embryology and its related fields is self-evident.

Without a sound conceptualization of embryology, congenital abnormalities ranging from lethal syndromes to mandibulofacial dysostosis cannot be diagnosed, treated, cured or prognosticated upon. In recent years, the understanding and teaching of embryology has been revolutionized by the application of computer technology which enabled portraying of developmental phenomenon as 3-dimensional model images in sequential depiction of changes proceeding in the fourth dimension of time.