Consanguineous Marriages in India are, we justified to the offsprings?

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INTRODUCTION

Consanguinity means descent from a common ancestor; a consanguineous couple is usually defined as being related as second cousins or closer. The word derives from 'con'+ 'sanguine' from the Latin, meaning 'of the same blood'. Around the globe consanguineous marriages have been practised by many societies from time immemorial. It is widely practiced in Asia, North Africa, Switzerland, Middle East, some parts of China, Japan and fishermen communities in Europe and America. Consanguineous marriage is widely favoured in a large majority of the world's Islamic populations One in two rural marriages in Tamil Nadu and Andhra Pradesh are consanguineous.

Hindus in northern India as a practice outlaw the consanguineous marriage by avoiding the same `gothra' or patrilineal relationship between the probable bride and the groom. In some of the western countries including the United States consanguinity closer than the first cousins are considered to be legally incest.

While assessing the consequence of consanguineous against non-consanguineous (non-blood related) marriages in health and disease, several scientific studies have shown that consanguinity leads to death of infants before, during or immediately after birth, increased incidence of birth defects, genetic diseases including blinding disorders, blood cancer (acute lymphocytic leukemia), breathing problems for children at birth (apnea), increased susceptibility to disease etc.

Parental consanguinity has been associated with increased risk of pediatric disorders including: Stillbirths and perinatal mortality, Congenital birth defects, Malformations, and mental retardation, Blood diseases (hemophilia, â-thalassemia), cystic fibrosis, Chronic renal failure and Neonatal diabetes mellitus.

It increases the autosomal recessive conditions through the expression of recessive deleterious alleles, especially in the offspring of first degree cousins. The population risk for any couple of having a child with a serious or lethal medical condition is around 2% (1 in 50). The excess risk for a couple who are related as first cousins, in the absence of a known genetic disease in the family, is in the order of 3% (1 in 30). This fact often comes as a relief to couples who expect a significantly higher figure.

The excess risk is as a result of autosomal recessive conditions arising due to homozygosity by descent that is, the risk of a recessive mutation present in an ancestor being passed down 2 branches of the family, and coming together in the consanguineous marriage. It is thought that we all carry at least one mutated allele which would cause an autosomal recessive condition if present in two copies (homozygousity). If this mutant allele is passed down to both members of a consanguineous couple from a shared ancestor they will both be carriers for this condition, and will therefore have a 1 in 4 chance of having an affected child.

The chance of both parents being carriers for a recessive condition is determined by how closely they are related, which means that the offspring risks can be minimised while retaining the social benefits of consanguinity if marriages occur between more distant relatives (e.g. second rather than first cousins).

We have reported several cases as a consequence to consanguinity in our department that includes various craniofacial syndromes like hemifacial microsomia, cleidocranial dysostosis, goldenhar syndrome etc, oral and perioral pigmentations, syndactlys etc.

Fig 1 shows 3 siblings having centrofacial lentinogenesis as a result of parental consanguinity. The tanned macules seen on their faces are lentigines which are freckle like pigments measuring around 5 mms to 1 cm in diameter and which do not fade even in winters.

Fig 2 again shows three siblings suffering from xeroderma pigmentosum as a result of parental consanguinity. These children not only are having physical discomforts but also are victim of psycogenic disorders like depression and

anxiety which they have developed due to social embarrassment.

Fig 3 shows a 6 year old girl having hemifacial microsomia due to parental consanguineous marriage. She has underdeveloped left facial structures along with macrostomia (large mouth opening in line with ear tags) and pfauficular (ear tags).

Fig 4 shows malformations of both upper and lower extremities in a 20 year old patient having family history of consanguinity

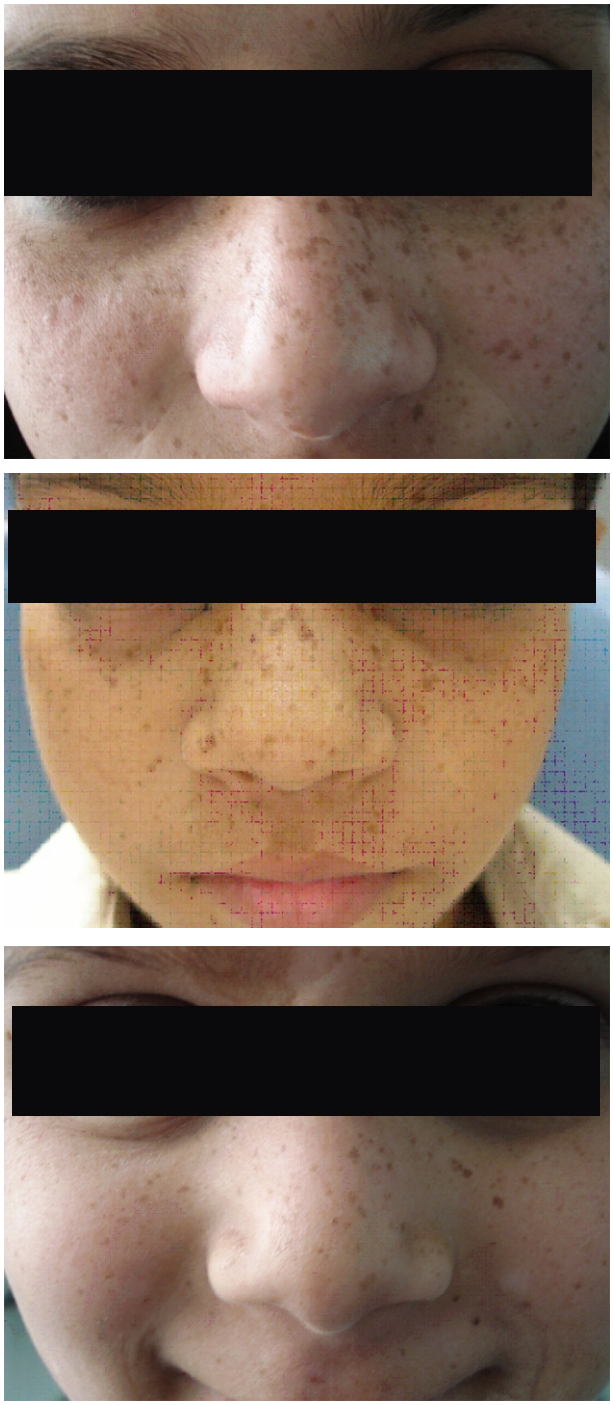

Fig. 1 (Centrofacial Lentinogenesis)

Fig. 2 (Xeroderma Pigmentosum)

Fig. 3 (Hemifacial Microsomia)

Fig. 4 (Extremeties Malformations)

CONCLUSION

Thus it is seen from previous studies and our case reports that consanguineous marriages are a major risk to the health of offsprings till the extent that they can cause various craniofacial abnormalities, orofacial pigmentations and other abnormal birth defects. These defects and abnormalities may be reported to the dental OPD, recognized by the dental surgeons and oral physicians and need to bring the awareness regarding the consanguinity to the patients. They increases the autosomal recessive conditions through the expression of recessive deleterious alleles, especially in the offspring of first degree cousins.. The social benefits of consanguinity should not outweigh the biological damages; but it is sad that many in the community are ignorant about these facts.