



EDITORIAL

Identification of a Victim by Skull Examination in Crime Cases: Real time studies

Sanjeev¹, Daisy Sahni²



Sanjeev



Daisy Sahni

Forensic facial reconstruction, restoration and superimposition techniques are used to identify a victim in crime cases. When unknown human skeletal remains and skull are found by the police from remote areas e.g. forests, valleys, buried in homes, sewages, wells canals, rivers etc.; the identification of these skeleton remains is of paramount importance to establish the corpus Delicti in the court.

DNA fingerprinting cannot be applied on these skeletal remains, due to absence of blood samples of the parents or close relatives of the deceased. Because, DNA profiling data base of Indian population is not developed yet.

Application of these three techniques is different in different scenarios

- Forensic facial reconstruction is applied, when there is only human skull and sometimes other skeletal remains of the deceased are also available for examination.¹
- Facial Restoration technique is applied on the deformed heads of a terrorist in Human Bomb blast case or victims of burn case.
- Facial superimposition is applied, when there is a human skull and the antemortem photograph of a victim is available i.e. police has some information of the victim or a missing person and a police report has been registered.

A preliminary study is undertaken to estimate the age, sex, height² and race of the human skull. Thereafter, one of the three suitable skull examinations is applied. Various craniometric measurements of the deceased skull are taken for examination.

Forensic facial reconstruction (Figs 1-2)

During the analysis of Forensic facial reconstruction, the soft Facial Tissue thicknesses are applied on standardized landmarks on the skull.³ Thereafter, the facial features (nose, eyes, mouth, eyebrows, chin, angles of jaw) are predicted from bony structures of the skull. The images of the estimated face are taken and published in mass media in order to identify a victim by the known people.

We have solved many cases with this technique e.g. Sh. Beant Singh (Chief Minister of Panjab) assassination case, Chandigarh.⁴⁻⁶ He was killed by a human Bomb (Dilawar Singh). The skull of Dilawar Singh was identified by facial reconstruction, later positively identified by DNA profiling by taking the blood sample of his parents. In another case, a human skeleton was identified which was recovered from sewage of the house of Chief Minister of Tripura (2007). Forensic facial reconstruction can be undertaken both by manual as well as computer and by using relevant software. We have applied both methods to identify a victim.

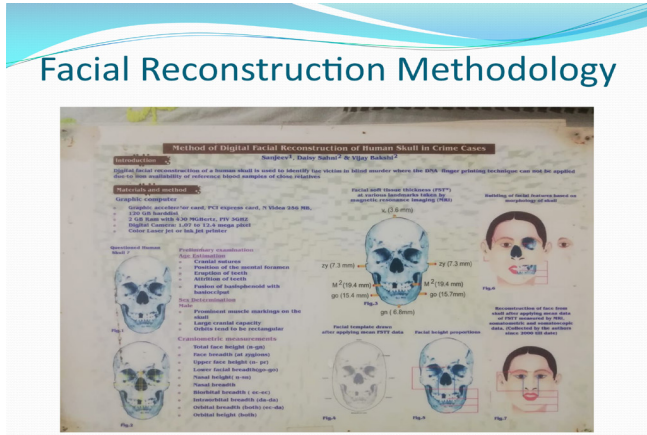


Fig 1: Facial Reconstruction



Fig 4: Extraction of Facial Features



Fig 2: Tripura Case

Forensic Facial Restoration (Figs 3-5)

Forensic Facial Restoration technique is undertaken in crime cases, where a face is prepared from the deformed heads found in Crime scene. The latter are either from the explosion by human Bomb in terrorist attack or victims in



Fig 5: Final Image of the victim



Fig 3: Deformed Head

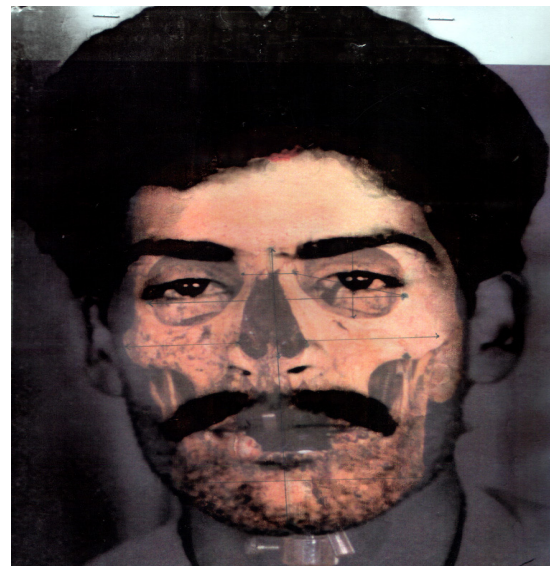


Fig 6: Pharganj Bomb Blast Case

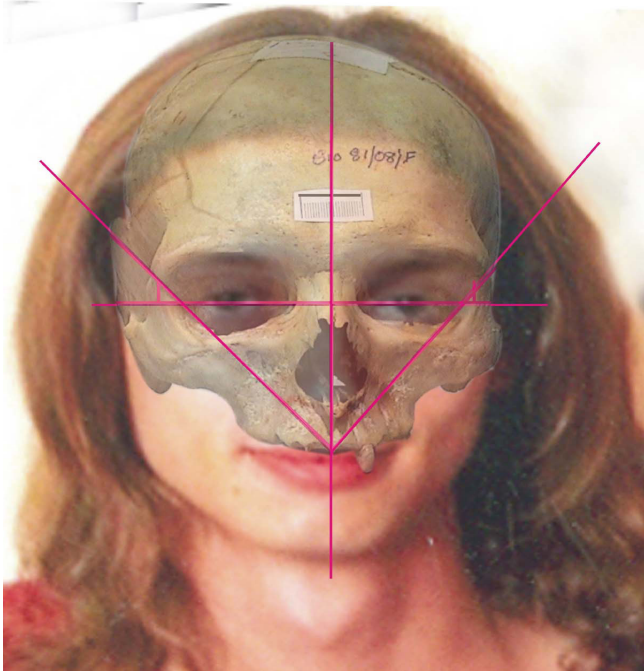


Fig 7: Russian Couple Murder Case Goa

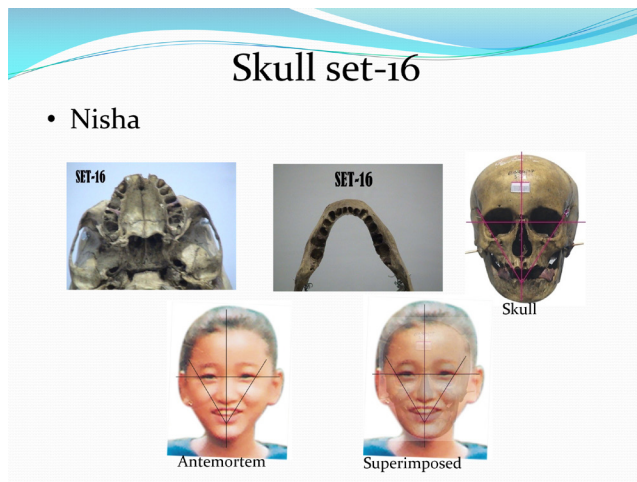


Fig 8: Nithari Case Noida

the burn cases. The deformed heads in both categories have partial facial features and soft tissue thicknesses. The

facial features are extracted from the former by computer and appropriate software and the final picture of the face is prepared. This image is circulated in mass media and the result is awaited to identify a victim. The Bombay Bomb Blast (2006), the human Bomb (Salim) belonging to J&K was identified with this technique. Similarly, a burn case from Chandigarh (2006) and a homicide case from, New Delhi (2009) were also identified with this technique.

Forensic Facial Superimposition(Figs 6-8)

In Forensic Facial Superimposition: technique the skull and ante-mortem photo of the victim is compared with each other. The life size photograph of the skull (with soft facial tissue thicknesses) is superimposed on life size ante mortem transparent photograph of the deceased, both in the same pose. Thereafter, the relationships of various facial features are matched with the corresponding bony strictures of the skull underneath and the final report is given. This technique can also be undertaken both by manual as well as computer and appropriate soft wares. We have solved hundreds of crime cases with this technique (1995-2018) e.g., Paharganj Bomb Blast Case (1996), Russian Couple murder Case, Goa (2007), Nithari Case, Noida (2006).

Many cases have been solved by applying combined techniques of Skull examination and DNA profiling e.g. Udampur Murder case (2008) and Nithari case, Noida (2006). We have analyzed about 500 crime cases from different states of India (1995-2018) and appeared as expert witnesses in various courts in our country.

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