

CASE REPORT

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Facial Casting as a Method to Help Identify Severely Disfigured Corpses

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ABSTRACT: The authors apply a previously reported method for facial casting of severely disfigured corpses, which allowed a three-dimensional cast to be made. This method involved several stages: face restoration, casting by elastomer, then three-dimensional positive image building. This technique seems to be useful in all cases of severe disfiguration of the face, particularly by trauma.

KEYWORDS: forensic science, forensic anthropology, forensic medicine, casting, human identification, facial restoration, facial reconstruction

The techniques used for identification largely involve facial recognition, simple, descriptive clinical details, fingerprints, dental comparison, radiological studies, and laboratory investigations. However, the condition of the corpse is sometimes such that restorative or reconstructive procedures are required. The aim of this work was to use a method previously published by our group (1)



FIG. 1—Suicide by train: severely disfigured corpse.



FIG. 2—Face is severely damaged.

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but that dealt with putrefied remains. We didn't know if this method could be applicable to other forensic cases, such as disfigured faces.

Methods

A 40-year-old man committed suicide by standing between the rails on a train track and waiting for the collision.



FIG. 3—Restorative procedure: shreds of skin are patiently gathered.



FIG. 4—End of the restoration step.

The impact was extreme (Fig. 1). Flesh and fragments of bones were discovered up to two hundred meters along the rails, and the body was totally altered. Amazingly, the brain was nearly undamaged and found lying between the rails.

The face was severely damaged, represented only by some small fragments of the occipital region and a few teeth (Fig. 2).

Destruction was such that visual identification of the subject was impossible. Thus we attempted a restorative procedure to help identify the person. The shreds of skin were patiently assembled on a mock skull (Fig. 3). This very difficult step produced a result that could not be used for media presentation to the public (Fig. 4).

We decided to make a cast, as reported in our previous work. A cast joint line was prepared using strips of plaster of Paris. It was demarcated by a line around the face including the upper frontal region, the area under the chin, 2 cm from the lower arch and a line in front of the ears. The strips of plaster were placed around the head taking care to follow this line that represents the outer limit of the cast. Then the negative cast was made, by spreading out a polyurethane elastomer (*RTV 573, Rhône-Poulenc*). The elastomer is a pasty chemical material that sets in about 12 hours at room temperature. Then, a plaster cover was placed on the elastomer, which had already been lubricated with petroleum jelly oil. The plaster cover with the elastomer was then removed. The positive image was made simply by using plaster of Paris, which was put into the negative cast. Finally, the posterior part of the cast was built up with silastic paste. The positive image was slightly colored.

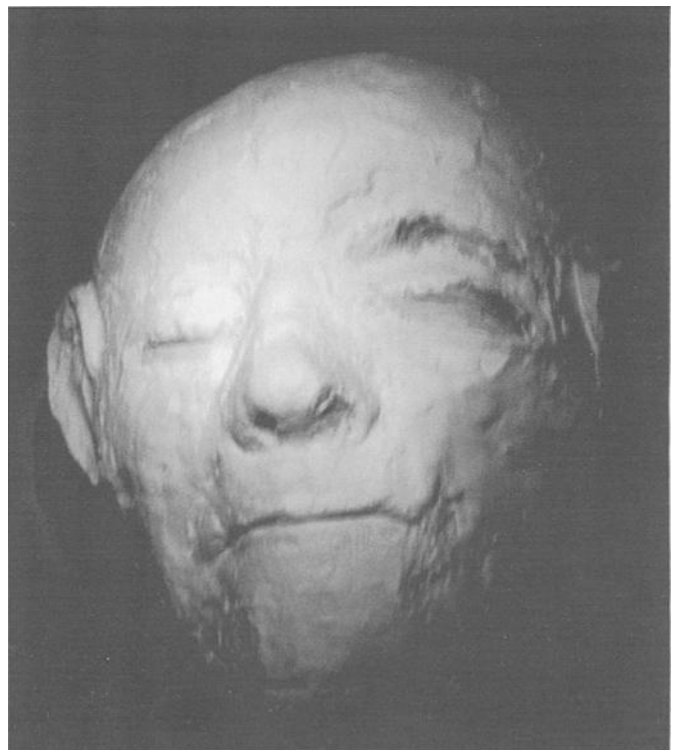


FIG. 5—Casting of the face reconstruction.

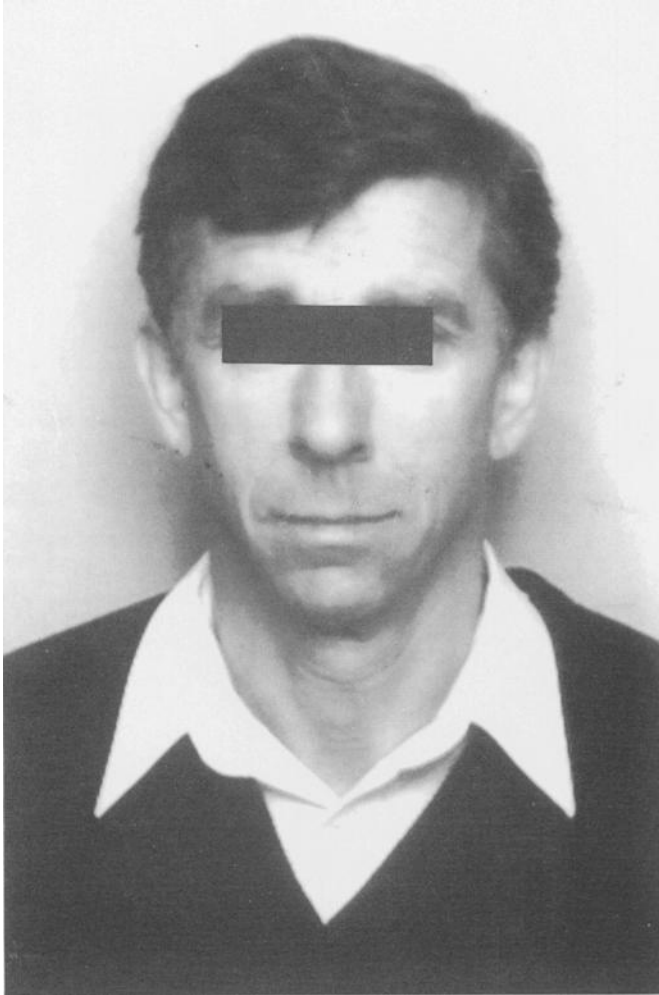


FIG. 6—Actual face of the deceased.

Results and Discussion

Photographs of the reconstruction were taken (Fig. 5) and given to the magistrate. In fact the person was identified meanwhile by finger prints, and photographs were not publicized in the local press. Nevertheless we think, according to our previous work, that this method could have helped recognition of the individual. Figure 6 shows the actual face of the deceased.

Medicolegally, casting techniques have rarely been employed. Examples include comparison of facial reconstruction with a death mask that have been made decades earlier (Sadler, cited by Ubelaker, 2), casting of the blood vessels with radioopaque material allowing an excellent postmortem angiogram, that was used in

227 medicolegal examinations following postoperative death to exclude surgical malpractice (3), and casts of damaged channels in stab wounds of the lung (4). Markings on bullets and cartridge cases have been studied under the comparison microscope with a new casting material (5). Casting techniques have also been used in the fields of anatomic (6,7), and clinical research (8,9).

We previously reported a restoration technique, followed by casting of a putrefied face, to help in the recognition of a body (1). This method showed an excellent quality of reconstruction, including faithful reproduction of the slightest facial details, and permitted the immediate recognition of the individual from a photograph of the cast when it was transmitted by the media.

In this case, the face was severely disfigured. The result was judged to be an average work—the whole face was too thick. We knew that the person was probably very thin, according to the thickness of his abdominal wall. But the weight of the cast was excessive and gave a poor result by gravitational effect. The second problem was that the nose on our reconstruction was too wide. This defect could be explained by the absence of nasal bones, but the nose presents a difficult technical problem, which was encountered during our previous effort. Nevertheless the proportions of the face were generally accurate, and the cast probably could have permitted or helped recognition of the subject.

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