

CASE REPORT

R. Cecchi · L. Cipolloni · M. Nobile

Incorrect identification of a military pilot with international implications

Received: 26 April 1996 / Received in revised form: 21 January 1997

Abstract The case is reported of a military pilot shot down in 1986 during a mission whose body was recovered in an advanced state of decomposition and delivered to Italian police in 1989. The first autopsy led to an incorrect identification of the corpse. Because of the advanced decomposed state of the corpse, a correct identification was made only through evaluation of the dental status and radiological examination. The correct evaluation of the specific shape of the amalgam restorations, particularly of those of the first and second inferior right molars, showed agreement with those of the pilot of the plane and not of the co-pilot as was initially stated.

Key words Identification · Dental records · Radiography

Introduction

The identification of human skeletal remains and putrefied bodies is of primary importance to serve the interests of surviving family members and the fields of medicine and law. Because of the increasing mobility of people in the world, identification problems can often concern people from different countries. In these cases the goal can be achieved only through international and professional co-operation [9]. As a comparison of antemortem and postmortem data is essential for identification, problems can arise in international cases because of differences in the method of data collection.

We present a case in which the total lack of contact between the countries involved led to a mistake in identification. This mistake was discovered only when a comparison of the antemortem and postmortem data became possible.

Case history

A young white male on active duty as an air force officer, was one of two pilots who failed to return from a bombing raid over a North African country. The government of this country recovered the body sometime after the raid and an autopsy was performed. In the report the body was described as being in an advanced decomposed state and no opinion was possible about his blood group. The body was reported to be covered by aquatic weeds and algae and the flight gear pockets were noted to be full of sand as typically found on beaches. Autopsy findings were limited to a fracture of the right heel, such as might be sustained in a parachute landing on a hard surface, mild pulmonary congestion, bilateral middle ear hemorrhage, and extensive postmortem changes. Death was reported as due to asphyxia as a result of drowning, and the time from death was estimated to be less than one month. After the autopsy the body seems to have been partially embalmed by immersion in formalin followed by periods of drying.

Identification of the corpse was problematic as no injuries, scars, tattoos or physical characteristics were found, and the „dental investigation“ reported that all teeth were present with moderate smoothing on the molars and premolars. The corpse was identified as the co-pilot of the plane.

The professional standard of the autopsy is unknown, however no identification protocol was used and identification was simply made by following a deductive method.

Because of the lack of diplomatic relations between the countries involved, the Vatican authorities obtained the release of the corpse 3 years after the first autopsy and it was sent in Italy. The identification examination was made by the forensic staff of our Institute together with an expert team from the native country of the pilot. The remains were dehydrated with all external tissue missing, head hair, both eyebrows and eyes were missing, portions of the superior nose and the outer layer of skin of the right cheek were also missing. Dark hair was noted on the lower portion of the face, chin and neck. Teeth were present in the maxilla and mandible and the mandible was excised for x-rays. The skin of the lower and upper limbs was macerated. Surface layers of skin were missing from the hands and feet.

It was not possible to establish the identity of the body by only visual methods or autopsy findings, and the evaluation of fingerprints could not be made because of condition of the corpse. The comparison of antemortem dental records of both pilots (documented by the anatomical odontogram including dental roots – Figs. 1 and 2), showed in both cases that the four third molars had been removed and that there were identical amalgam restorations in all molars except n. 18. As the dead persons also had the same clinical dental characteristics (Fig. 3), identification was not possible. For this reason it was necessary to compare the postmortem

R. Cecchi (✉) · L. Cipolloni · M. Nobile
Istituto di Medicina Legale e delle Assicurazioni,
Viale Regina Elena, 336, I-00161 Rome, Italy
FAX: +39 (6) 4455 335

Restorations and missing teeth

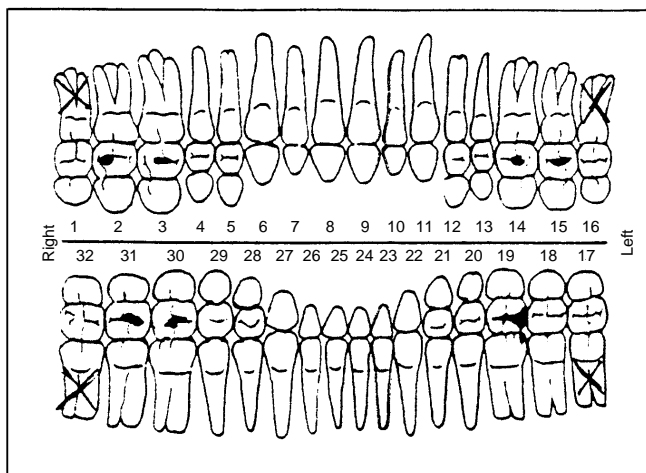


Fig. 1 Pilot's anatomical odontogram

Restorations and missing teeth

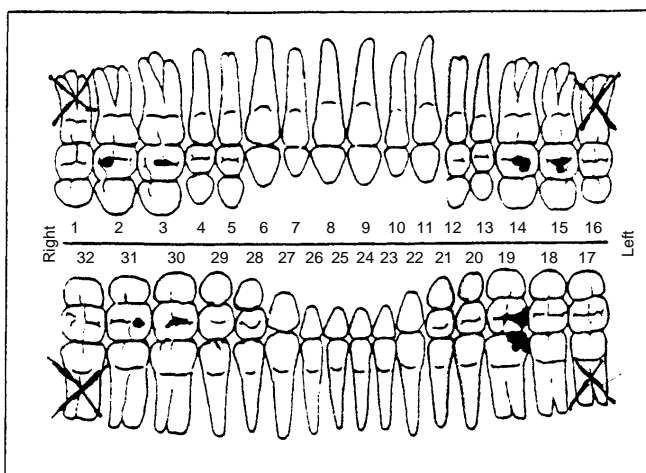


Fig. 2 Co-pilot's anatomical odontogram

Restorations and missing teeth

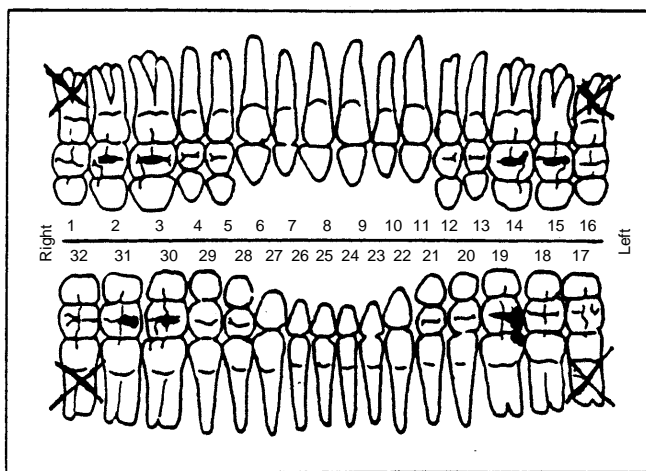


Fig. 3 Victim's anatomical odontogram

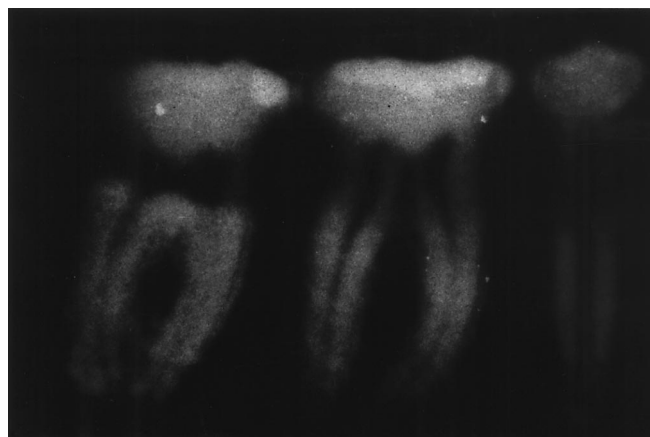


Fig. 4 Victim's dental x-ray which permits an exact evaluation of the restoration of the first and second inferior right molars

dental radiographies with the antemortem dental bitewings radiographs of both pilots. This comparison allowed the correct evaluation of the specific shape of the amalgam restorations, particularly of those of the first and second inferior right molars (Fig. 4). An exact evaluation of the restoration of the teeth showed agreement with those of the pilot of the plane, and not of the co-pilot as was initially stated. The radiographies of the victim were taken in our Institute but those of both pilots were not left by the foreign expert staff because they were covered by military secret, therefore it is not possible to show them in this paper.

Discussion

The case reported illustrates the importance of dental records for identification because this was only possible by a comparison of the antemortem dental record, given by the foreign expert team, and our postmortem dental findings.

The postmortem findings were documented on an anatomical odontogram with dental roots because the antemortem data were recorded in this way. Because of the similarities between the dental characteristics of the two pilots involved, it was not possible to make a precise identification without the collaboration of a forensic odontologist. By the comparison between antemortem and postmortem radiographs, a definitive identification was possible due to the very characteristic fillings of the first and second inferior right molars (30 and 31 of the odontogram).

The initial identification was made in the North African country without a forensic odontologist or an Identification Commission. In addition, an accurate description of dental status was not given in the autopsy report so that essential elements for identification were lacking. Therefore the identification could only be empirical and lacked the necessary scientific reliability which resulted in a serious error.

This case confirms the importance of an interdisciplinary team, comprising a forensic odontologist and a forensic pathologist [6, 8], and in cases such as this where only one of the bodies of the pilots was available.

Forensic odontology place an important role in identification [7]. The statistical significance of dental identification is inversely related to the feasibility of non-dental methods. In instances in which there is a relative presence of mutilating injuries and carbonization, it will inevitably rank as the primary mode of identification [11]. On the other hand forensic radiology plays an essential role when the odontological examination cannot give a precise answer to the problem [4]. It is often necessary to take intra-oral radiographs to establish a full identity [8] especially when different countries are involved.

Finally, for identification some essential presuppositions are fundamental:

- 1) use of standardized autopsy protocols [1];
- 2) creation of an international system for the description of autopsy findings, as suggested by Interpol but not yet accepted [10];
- 3) creation of national Identification Commissions which can become active in mass disasters and in particularly difficult cases. For those cases in which the country involved (like the North African country in our case) has no adequate resources to make a correct identification, we suggest the creation of a neutral international Commission.

The effective use of the guidelines adopted by official bodies (such as Interpol) by all countries could harmonized identification procedures. In this way the reliability of an identification made in a specific country could be correctly evaluated. It would be particularly important to find a form for the description of dental findings which is internationally acceptable and used in practice. There are about 15 different nomenclatures [13, 15], but since 1970 the F.D.I. recommend the use of the two digit system which is nowadays used by most of the Interpol Countries [2, 3, 10]. Some of these countries have a computer-based matching data bank [14] which allows quick and precise identifications in cases involving national citizens [8]. In Italy the Interpol identification guidelines are being concretized by creating an Interpol identification team. Obviously the use of the Interpol identification form will be more efficient as more countries use it in practice. The Interpol form should especially be used for international cases. The use of the Interpol form necessitates a collection of antemortem dental and medical records which are as complete as possible. This requires regulations oblig-

ing all physicians and dentists to keep all clinical records of their patients as is done in the military field.

Finally we think that to obtain a reliable identification every forensic pathology institution has to form an interdisciplinary group including forensic pathologists, odontologists, anthropologists and radiologist, as recommended by the NCIC [5, 12].

Because of the increased mobility of population in general and the consequent possibility that a person dies in a foreign country, it is clear that every national group should collaborate by using common forms, abbreviations and codes to overcome communication barriers that could compromise the results, especially when the only way for identification is by the examination of teeth.

References

1. Brinkmann B, Cecchi R, Du Chesne A (1994) Legal medicine in Europe - Quo vadis? *Int J Legal Med* 107:57-59
2. Endris R (1979) *Praktische Forensische Odonto-Stomatologie. Kriminalistik*, Heidelberg
3. Endris R (1982) *Forensische Katastrophen-medicin. Kriminalistik Verlag*, Heidelberg
4. Evans KT, Knight B (1981) *Forensic radiology*. Blackwell Scientific, London
5. Haglund WD (1993) The National Crime Information Center (NCIC) missing and unidentified persons system revisited. *J Forensic Sci* 38:365-378
6. Hoof PJ, Noji EK, Van De Voorde P (1989) Fatality management in mass casualty incidents. *Forensic Sci Int* 40:3-14
7. Katz JO, Cottone JA (1988) The present direction of research in forensic odontology. *J Forensic Sci* 33:1319-1327
8. Kullman L, Solheim T, Grundin R, Teivens A (1993) Computer registration of missing persons. A case of scandinavian cooperation in identification of an unknown male skeleton. *Forensic Sci Int* 60:15-22
9. Kullman L, Cipi B (1992) International cooperation in a dental identification. *J Forensic Odontostomatol* 10:25-31
10. Martini P (1988) *Medicina legale in odontoiatria*. USES, Firenze
11. Merli S (1984) Il valore dello studio del sistema dentario nei cadaveri carbonizzati. *Proceeding of the Meeting on Laurea in odontoiatria e protesi dentaria*, CIC Ed., Modena, Nov. 1981, pp 229-234
12. Miras A, Mali M, Malicier D (1991) *L'identification en médecine légale*. Editions Alexandre Lacassagne, Lyon
13. Robetti I (1983) *Le nomenclature dentali*. Minerva Stomatol 32:467-478
14. Solheim T, Ronning S, Hars B, Sundnes PK (1982) A new system for computer aided dental identification in mass disaster. *Forensic Sci Int* 20:127-131
15. Umani Ronchi G (1993) *Medicina Legale in Odontostomatologia*. EDI-Lombardo Ed., Roma