



FORENSIC IDENTIFICATION



Identification of live or deceased persons is of paramount importance for many juridical, financial, ethical, social, religious reasons.

The positive identification of a person involves 3 cumulative elements:

- personal characteristics / physical features,
- fingerprints
- dental print

The identification process can be long and complicated and it can lead to 3 main conclusions: positive identification, probable identification and inconclusive or negative results.

This lecture is a presentation of the main identification criteria.

Visual identification

- are rarely useful in multiple victim incidents
- are completely useless in cases of mutilations, burn/carbonisation or advanced decay;
- besides the fact that it is inhuman it is extremely relative because the mourning relatives found in a state of shock frequently can make confusions;
- In the incidents involving few victims it can be the fastest and absolutely valuable method;
- It can be completed by the photography of the victims and using these photographs in a preliminary screening, thus avoiding the direct visual contact with the bodies.

Photography

The passport, visa or personal photographs can be used as identification method, but with significant caution.

Personal (somatic) characteristics

- a) General information – race, approximate age, gender, weight, conformation, skin colour, hair and eyes colour, hair length, presence or absence of baldness, face conformation, ears conformation, presence or absence of hirsutism etc.
- b) Special information – scars, tattoos, birth marks, amputations, circumcision, old wounds, malformations.

„the spoken portrait”

- c) Information on the occupation – coal pigmentation of the skin (miners), clavuses etc.
- d) The presence of skin conditions – psoriasis, eczemas.

Clothes

- a) Will be described in detail, exemplified with photos or, in certain cases (especially when they are fragmented) will be shown to the relatives, after being previously cleaned.
- b) Any label, regardless its origin, can be used in the identification process.
- c) under the effect of the elements, articles of clothing can change colour, texture, etc. that render them almost unrecognisable to the identifier.

Personal effects

- a) The content of the pockets – every item found in the pockets is taken out, catalogued and described. Any document found on the deceased can be used as an identification source, especially when documents with the same name and address are found.
- b) Jewels – The rings, earrings and necklaces can be used in the identification. These items may need a previous cleaning before being showed to the relatives. In the case of mutilated bodies, the jewels can be found inside the corpse or in other places. All the items that are recovered are given back to the relatives.

Finger and palm prints

In some countries, the fingerprints taken from the bodies can be compared with those existing in the army or police data bases.

If comparing fingerprints becomes a matter of maximum importance, the prints can be lifted from personal items, from the working place or from home and compared with those taken from the body.

The fingers that were partially decomposed or dehydrated after death, in conditions of refined laboratory preparation, still can be important sources for fingerprints.

Characteristics/details of the feet

Some army data bases preserve archives of footprints of those enrolled, therefore the identification can be done using these prints. Otherwise, foot prints can be sought in the house.

Teeth

The characteristics of the teeth are almost completely preserved, even in cases of severe mutilations, advanced decay or even carbonisation.

Experience showed that the research should be made in parallel by a forensic pathologist and an odontologist, and the results to be confronted afterwards.

The careful examination of the teeth by experts, combined with dental X-ray, seems to be the most useful form of identification in many circumstances, especially when the soft tissues are destroyed.

Prior dental records are necessary for this method.

When describing teeth, the standardised symbols for the temporary and permanent dentition are useful:

Temporary dentition

Right superior	Left superior
55 54 53 52 51 85 84 83 82 81	61 62 63 64 65 71 72 73 74 75
Right inferior	Left inferior

Permanent dentition

Right superior	Left superior
18 17 16 15 14 13 12 11 48 47 46 45 44 43 42 41	21 22 23 24 25 26 27 28 31 32 33 34 35 36 37 38
Right inferior	Left superior

This designation of teeth is also called the double digit system and belongs to I.F.D (International Dental Federation).

Standard specific symbols of Camps (1968) in legal medicine are simple and suggestive:

Healthy and present teeth	
Missing teeth	= X
Roots present	=
Cavities	= ○
Obturations	=
Teeth with prosthesis	= P
Crowning	= C
Direction of mobile tooth	= -->

Another category of standard symbols which also include prosthetic restorations :

Missing teeth (by extraction, accidents, paradontosis) = X

Erupted teeth = O

Radicular remains = R

Inlays = y

Material used for crowning:

Au – gold

Wi – Wipla type non oxidable steel

Material used for prosthesis:

Ac – acryl

Au – gold

Cr-Co = Cr – Co alloy

Wi – Wipla

For **natural teeth** the following should be noted and numbered:

- number of teeth present
- affected teeth
- visible roots in the mouth
- extractions: recent and old, healed and those that have not healed
- obturations – materials used, temporary repairs, crowning, bridges and crowns;
- root obturations
- apical resections
- modifications of forms of the teeth , palette and type of cranium according to anthropometric technique measurements
- observations, for example the existence of a paradontopathy, partial **edentations**, wear from rubbing etc.

For **dental prosthesis**: complete, partial, superior, inferior, or mixed

Radiology

- Certain radiological features (ossification points) can be useful in determining the age of the victims, especially in children.
- Some anatomical abnormalities (ribs, metallic valves, osteosynthesis parts) can be important information for the identification.
- The tri-dimensional aspect of the frontal sinus is a very useful element for identification, because it is unique for any individual, thus it can be compared with previous X-ray examinations.
- In incidents involving explosions or firearms, X-rays of the entire body are performed, in order to find inside the corpse specific foreign bodies (shrapnel, pellets, bullets).

Serology

- Routine tests exist for finding the blood type in the ABO and Rh systems, but also tests for obtaining other information from the blood of the deceased.

DNA tests

A sample from the spleen or muscles (preferably the ilio-psoas muscle), hair, bone or saliva swap can represent the source for DNA typing.

This sample will be compared with a blood or bone marrow sample or with a profile obtain by elimination, using biological material from the relatives of the victim.

Sometimes difficulties in identification may occur, such as in the cases of DNA contamination or other types of contamination of the biological material.

Facial reconstruction

It can be performed using computer techniques by specialists in soft tissue reconstruction.

In some accidents, especially of physical or chemical nature, a process of cleaning the corrosive agent, toxic gas or radioactive sources from the site before the collection and identification of the bodies is necessary