

## Briefly Unidentified: A Study of a Peculiar Source of Identification

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**ABSTRACT:** In May of 1992, unidentified human remains were received at the C.A. Pound Human Identification Laboratory, University of Florida, Gainesville, Florida for identification. The decedent was identified as a white female in her early sixties between 62 and 63 in. in stature. Significant trauma was observed at various skeletal sites. The identity of the decedent was meant to be obscured due to the decapitation of the head and removal of the lower arms including the hands. Examination of the clothing revealed that the first initial and last name of the decedent had been written in ink inside the label of the underpants. Subsequently, this information was matched with missing persons reports. Identification of the decedent was confirmed by comparison of antemortem and postmortem radiographs.

**KEYWORDS:** forensic science, forensic anthropology, physical anthropology, human identification, trauma, William R. Maples

In late May of 1992, an articulated badly decomposed human body was found on the surface in a wooded area in northeast Florida. The torso and extremities were predominately covered by soft tissue with extensive insect activity. The relatively skeletonized left humerus was found lying near the body. Evidence of trauma was observed with the decapitation of the head and the removal of the distal one third portions of the ulnae and radii including the hands. Depending on the environmental conditions during the postmortem interval and from the remaining soft tissue, estimated time since death was under one week up to several weeks.

At the request of the district Medical Examiner's Office, the body of the decedent was received at the C.A. Pound Human Identification Laboratory at the University of Florida, Gainesville, Florida for identification. Clothing consisting of a pajama top and bottom and underpants were also received at this time. Evidence of numerous stab wounds to the soft tissue of the upper back were observed at external examination. The remains were then carefully prepared for maceration and processed over several days.

Osteological analysis indicated that the decedent was a female based on the morphology of the pelvis. The sciatic notch and features of the pubic symphysis region were clearly female. The sternal end of the right 4th rib was in Phase 7, which gives an age range between 59 and 71 years of age (1). The pubic symphyses were in Suchey-Brooks Phase VI (2). The mean age estimate is 60 years.

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Evidence of osteophytic development on the vertebral column corroborated an age estimate in the early sixties. Race of the decedent was determined to be white from the morphology of the femora. Based on long bone measurements, the best estimate of stature was between 62 and 63 in. (3).

Osteological evidence of the decapitation of the head was observed at the level of the second cervical vertebra. Evidence of trauma included the severing of the odontoid process, superior surface of the left lamina and left articular process. The anterior border of the C2 inferior body showed similar incised damage. The left pedicle and right superior articular process of C3 were cut away. The cranium and first cervical vertebra have never been recovered.

In this particular case, the soft tissue damage observed to the upper back was reflected on the underlying skeletal elements. In order to examine the trauma on the clothing, Dr. Maples placed the pajama top over an anatomical skeleton in the lab. The clothing showed evidence of numerous stab wounds concentrated in the upper back near the base of the neck and to the front and back of both shoulders. Measurement of these defects suggested that the wounds were produced by a knife with a blade width of approximately three quarters of an inch.

Cut marks were observed on the head of the left first rib and to the anterior side of the head of the left second rib. Damage to the sternal end and to the neck of the left first rib appeared to have been cut through by a sharp weapon. The left and right transverse processes of the first thoracic vertebra also showed evidence of having been cut by a sharp implement.

Evidence of incised damage to the left scapula was present 36.5 mm superior to the inferior angle. A stab wound through the spine of the left scapula measured 15 mm in width with a fracture extending from the wound. This defect would have been caused by a downward moving stab wound to the left back. Incised damage was also observed through the anterior portion of the right clavicle near the acromial end. The medial end of the right clavicle was broken away.

The rib cage of the decedent showed fractures to all of the ribs except for the left and right first ribs. As a result of this extensive trauma to the torso, it was necessary to reconstruct the ribs. Several of the ribs exhibited multiple fractures. Based on his previous experience, Dr. Maples believed that the nature of these injuries were consistent with having been run over by a motor vehicle. Also as a result of this trauma, the manubrium which had been fused to the body of the sternum was broken away. Both the hands and distal one third portions of the radii and ulnae were cut off by what was thought to be a blunt edged weapon. Neither the hands nor the lower arms were recovered.

The clothing, specifically the underpants, provided the major lead in establishing the identity of this individual. A presumptive

identification was made when the first initial and last name of the decedent was observed written in ink on a label inside the underwear. Using this information, investigators checked missing persons reports to obtain medical records that could contribute in the identification process. Antemortem radiographs consisting of AP and lateral views of the chest, taken approximately one year before the time of her death, were obtained for comparison purposes. Postmortem radiographs were taken at the C.A. Pound Laboratory to replicate the same positioning of the antemortem film.

### Radiographic Identification

Confirmation of the decedent's identity was made by comparison of antemortem and postmortem radiographs of the left clavicle and left first rib. Both films showed similar patterns of luscency at the sternal and acromial end of the clavicle (Fig. 1A & B). The area of luscency begins directly within the sternal end of the clavicle and extends laterally. At the acromial end, the radioluscent site is rounded in shape. Points of consistency also included areas of cortical thickness.

More strongly diagnostic was the radiographic comparison of the left first rib. Evidence of a localized, well defined oval-shaped radioluscent area was observed in the anterior rib end. The location and uniform shape of the defect are identical (Fig. 2A & B). The site represents an area of thinned cortex. A possible explanation for the feature is that of a normal anatomic variation that occurred during development of the cortex (4).

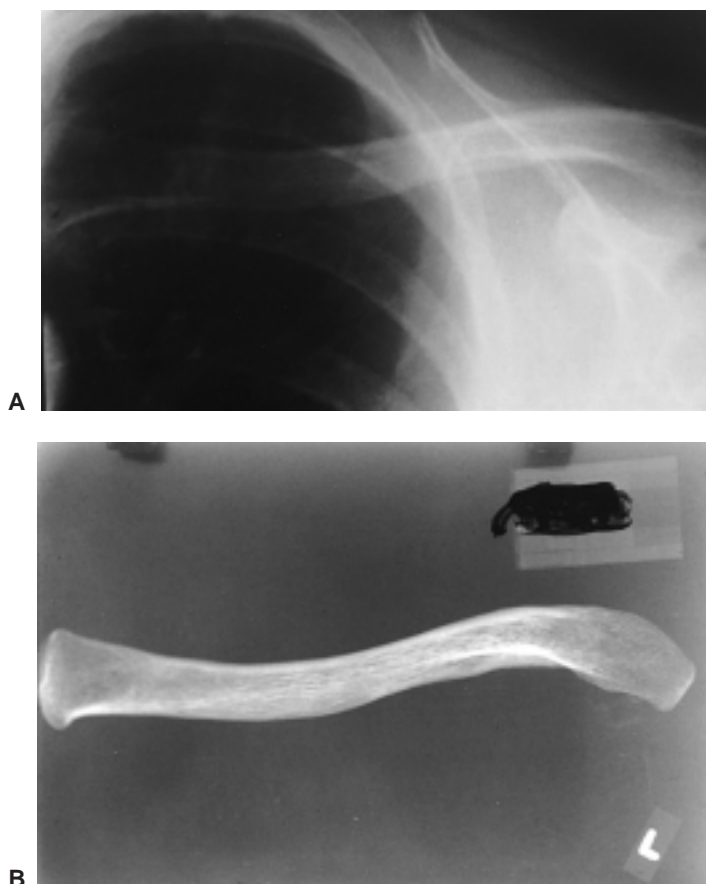


FIG. 1—Comparison of AP chest radiographs: A) Antemortem chest radiograph taken approximately one year prior to death. B) Postmortem AP view of the isolated left clavicle in anatomic position.

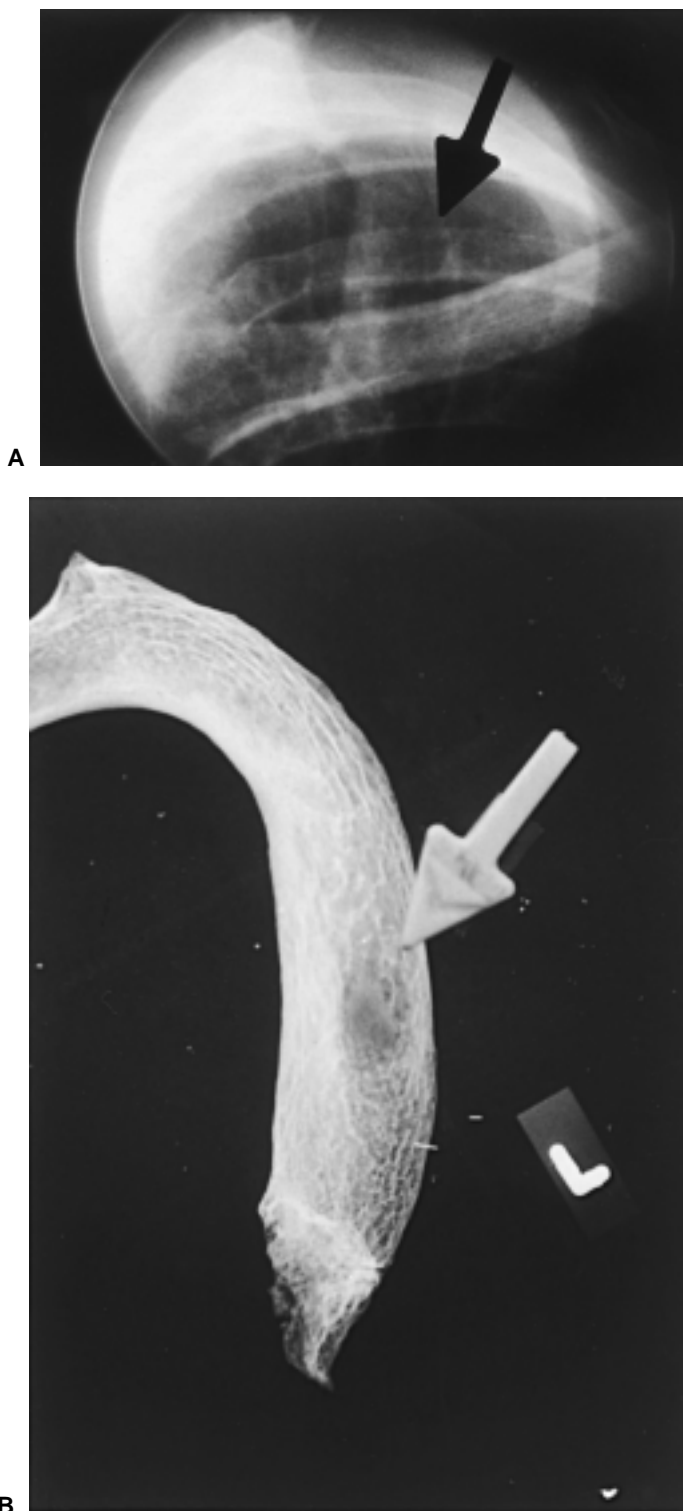


FIG. 2—A) Antemortem AP chest radiograph showing the left first rib. B) Postmortem radiograph of the isolated left first rib. Note the oval-shaped radioluscent area at the anterior rib end (matching arrows).

After the identity of the decedent was confirmed, investigation led to a possible suspect and recovery of weapons that may have been used in the crime. A hatchet, hammer, and knife were received from the Medical Examiner's office for comparison with the damaged areas of the skeleton. Dr. Maples determined that the hatchet

could have caused the damage to the second and third cervical vertebra, right clavicle, radii and ulnae. Examination also found that the 15 mm ( $\frac{5}{8}$ " ) blade width of the recovered knife was consistent with the maximum blade width determined from the perforations in the pajama top and spine of the left scapula.

## Discussion

Case reports in the forensic literature have shown that antemortem and postmortem radiographic comparison of distinct skeletal anatomic features can be used as a reliable method of scientific identification. Identification by frontal sinus patterns is possible due to individual patterns (5,6). Rhine and Sperry (7) comment on a case in which unknown skeletal remains were identified by the outline and details of the mastoid sinus. The pattern of costal cartilage calcification can also be used as a unique anatomical marker (8). Sanders et al. (9) present a case in which identification was made from the clavicle, the only bone recovered other than bone fragments. Cranial features created by surgery and normal vascular groove patterns have also been used as radiographic points of positive comparison (10, 11). Bone configuration and trabecular pattern, orthopedic devices, old fractures, normal and abnormal bony anatomic variations and bone disease can be used in radiographic comparison. Evidence of a distinct anatomic variant in the anterior end of the left rib in this case report represented an unique feature for comparison.

## Summary

The irony of this case illustrates that despite the trauma inflicted upon this individual to hinder her identification, a means for a presumptive identification was present from an unexpected source. It also serves as an excellent example of the value that can be attained from the analysis of all possible information presented by skeletal remains. The tentative identification of the decedent was confirmed by antemortem and postmortem radiographic comparison. Trauma analysis indicated that the decedent had been decapitated and the lower arms removed by a similar implement. Evidence of multiple stab wounds to the upper back were also observed. Reconstruction of the rib cage suggested that these fractures had been produced by a crushing force, possibly from having been run over by a motor vehicle. Recovered weapons from a suspect were compared to the damaged areas of the skeleton. At this time, no arrests have been made in this case.

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