

## **Case report**

### **Prior surgical intervention of the bone; useful finding for the examination of the skeletal remains**

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#### **Abstract**

In general, personal identification is an important part of forensic practice. Evidence of prior surgery in a skeletonized remains is a useful findings for personal identification. Here we describe two cases where bone scarring shows evidence of prior surgery, and how these findings become useful information for identification of the victims.

**Key Words:** personal identification, skeletal remains, surgical intervention

#### **Introduction**

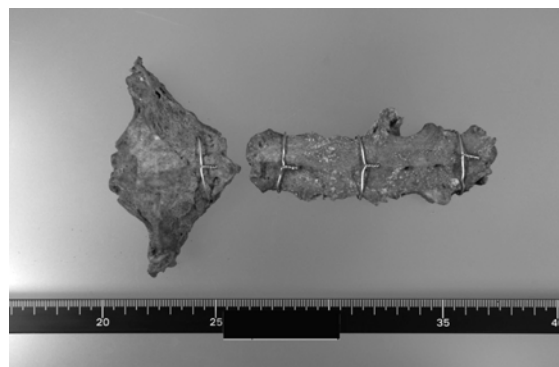
Evidence of prior surgery in a skeletonized remains is a useful findings for personal identification<sup>1,2</sup>. In this report, we describe two cases of skeletal remains with a scarring of the bones as evidence of prior surgery.

#### **Case Report**

##### ***Case 1***

The almost completely skeletonized remains of a person were found in a disused house. Anthropological findings lead us to determine that the deceased was a male of 50-70 years of age. The stature of the victim, calculated from the length of the femoral bones, was approximately 165-170cm, and the postmortem interval was estimated at approximately 2-5 years. There were four parts of metallic wire sutures in the sternum (Figure 1). There was no evidence of recent injury. The investigation by the authorities showed that the brother of an owner of this house who had been missing for approximately four years prior to the discovery of these remains, had received chest surgery approximately 25 years ago. Although, we

could not obtain his medical record, subsequent DNA examination using AmpF/STR® Identifiler® PCR Amplification Kit (Applied Biosystems, USA) identified the remains as those of the brother of the owner of this house. His age was within the estimated range.



**Figure 1:** The four metallic wire sutures in the sternum.

##### ***Case 2***

The almost complete human skeletal remains of a person were found in some woods at the end of August. The personal identification card was found around the remains. This person had been missing approximately two months before

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discovery. Anthropological examination revealed that there was evidence of a laminectomy below the 9th thoracic vertebrae and fusion of the lumbar vertebrae (Figure 2). However, there was no evidence of recent injury. The sex, age, stature of the victim were estimated as male, 50-60 years old and 159-169cm, respectively, and the postmortem interval was estimated to be within one year.



**Figure 2:** The evidence for laminectomy of the vertebrae.

During subsequent investigations by the authorities, it was determined that the person, whilst alive, had twice received orthopedic surgery of the spinal column. Subsequent DNA examination using

AmpF/STR® Identifiler® PCR Amplification Kit (Applied Biosystems, USA) revealed that the victim was identified as a person of the personal identification card. His stature and age are within the estimated range.

### **Discussion**

It is common to use the DNA typing of the skeletal remains for the personal identification<sup>3</sup>. In these two cases, DNA typing of the skeletal remains was a powerful tool for the personal identification. Discrete anatomical abnormalities such as healed fractures, prostheses, bone disease and surgical artifacts are also useful individual characteristics and can be identified rapidly without special examination<sup>4</sup>. The presence of surgical scars in bones could be useful information for helping to the subsequent examination of the DNA typing. In the present two cases, where there was previous evidence of the surgery without detailed medical records being available, this evidence was able to provide helpful information for personal identification.

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