

Reports Submitted to FAMSI: Ximena Chávez Balderas

Human Sacrifice and Mortuary Treatments in the Great Temple of Tenochtitlán



Research Year: 2005

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Chronology: Postclassic

Location: México City, México

Site: Tenochtitlán

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Introduction

The present report describes the study undertaken with the osteologic collection obtained from the Great Temple excavations in Tenochtitlán; this collection was assembled in the interval from 1978 to 2005. The financial support granted to us by FAMSI enabled the creation of four lines of research: 1) packing and preventive conservation; 2) osteobiography; 3) mortuary treatments; and 4) population genetics. Immediately, a detailed exposition of the work and its results up to the present moment will be given.

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Figure 1. General view of the archaeological zone of the Great Temple in México City.

The bone collection in study

For the present study the human remains found in 19 offerings in the Great Temple of Tenochtitlán were analyzed. This place symbolizes the *axis mundi* for the Mexicas. The deposits were temporarily situated in the period comprehended between 1440 and 1502 A.D., which corresponds mostly to stage IVb (1469-1481 A.D.). The total number of bodies studied was 107.¹ From these, seventy-four were recovered in the context of offerings and correspond to skull masks, decapitated skulls, tzompantli skulls, isolated remains and a primary context.

¹ The corresponding sample was completed with the human remains found in the construction fillings. Besides, an analysis was carried out in 14 more individuals, coming from other contexts and sites, for they were considered important for comparison reasons.



Figure 2. Platform from stage IVb, where 90% of the bone collection was recovered.

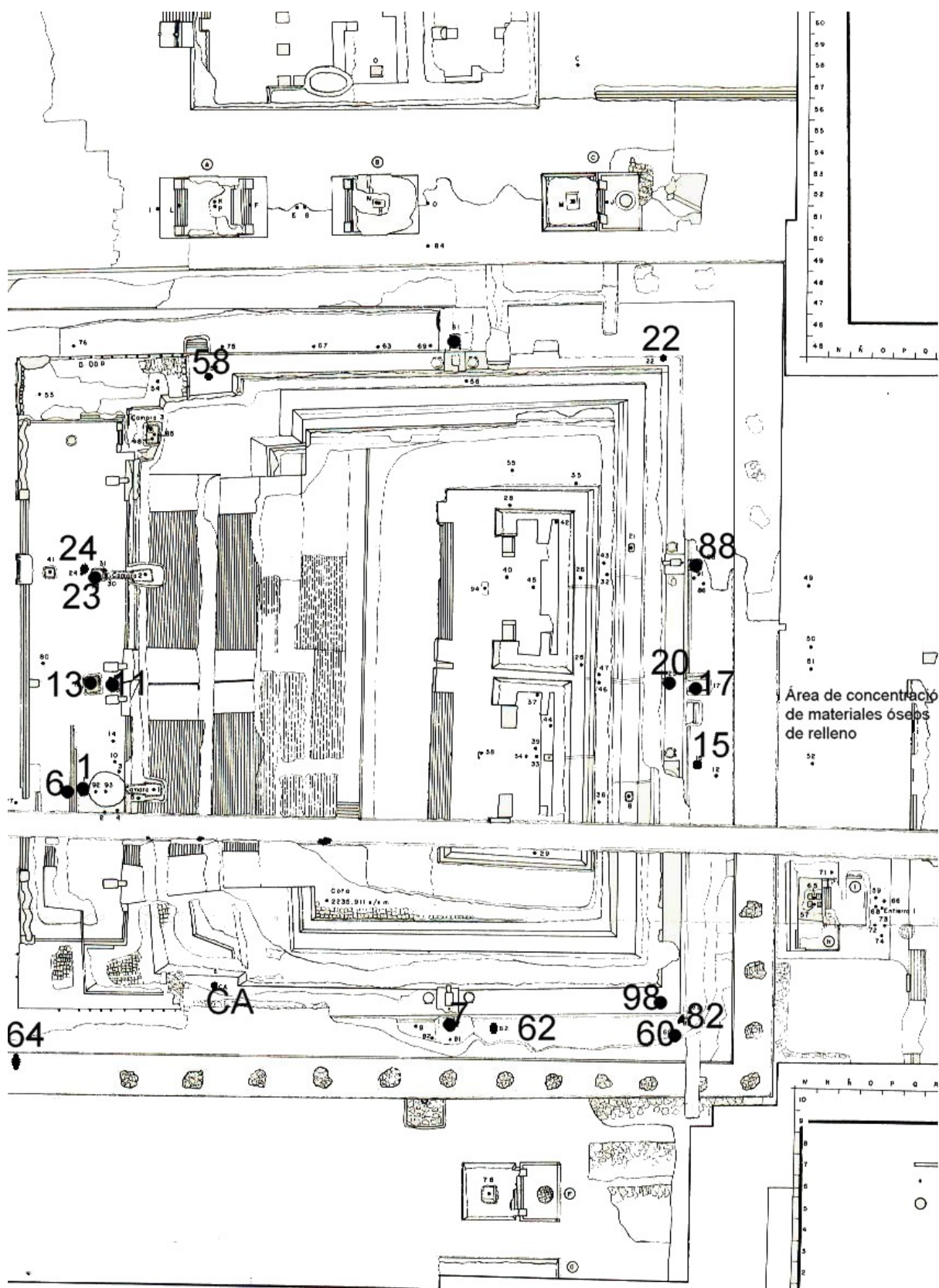


Figure 3. Map showing the distribution of the offerings with bone materials pertaining stage IVb.

Human sacrifice and mortuary treatments

By considering the characteristics of the ritual deposits and the information provided by the osteologic analysis, we were able to corroborate that the remains found in the analyzed offerings correspond to sacrificed individuals.² The various forms of ritual deprivation of life will be described in detail in the final publication of the present investigation.

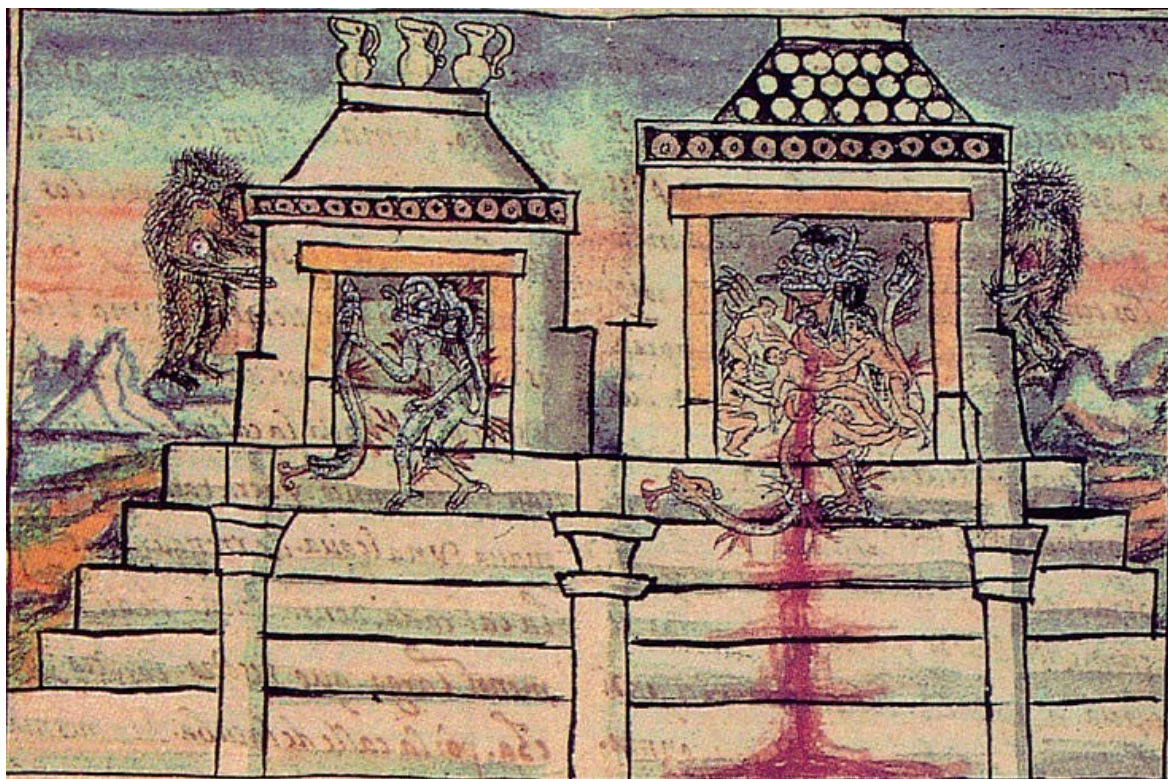


Figure 4. The Great Temple of Tenochtitlán. Sacrifice in the oratory of Huitzilopochtli, *Duran Codex*, 1995, plate 30.

With regard to mortuary treatments it is important to state that under this category we classified the cultural modifications manifested in the human remains, which in turn transform these remains into offerings as well. It is crucial to establish a distinction of the marks carved in the bones according to the conditions surrounding the death—*postmortem*, *perimortem* or *antemortem*—since this information provides an insight into the general sequence of the ritual. In addition, a special emphasis has been made in the comparison of the archaeological evidence with the forensic information and the muscular and skeletal anatomy. This type of perspective allows a better understanding of the sacrificial phenomenon and the procedures carried out by Mexica priests.

² The funerary contexts were analyzed in a previous investigation (Chávez, 2002).

Methodolgy

To analyze the materials, field reports were consulted and the remains corresponding to the same offering were studied in conjunction. This caused a delay in the analysis, for the materials deposited in the museum storeroom had to be put together, as well as those kept in permanent exhibition. In this manner, the following issues had to be overcome: problems with field records, separation of mixed remains, calculation of a minimum number of individuals and restoration of the elements. Considering that the majority of the materials were excavated around three decades ago, the preventive conservation program turned to be of utmost important since it will guarantee the conservation of the collection in the future;³ we are therefore truly grateful to FAMSI for their generous support to make this program feasible. The following figures illustrate, in a graphic manner, this part of the present work.

³ Approximately 90% of the collection had to be restored, thus the original chronogram of this investigation was considerably delayed.



Figure 5. Aspect of the original packing of bone materials of Offering 17.



Figure 6. Aspect of bone materials in which one can appreciate *postmortem* fractures produced by the compression of sediments in the context. Offering 17.



Figure 7. Bone materials from the storeroom and from the permanent exhibition. Offering 20, NMI 11.



Figure 8. Restoration process of a decapitated skull. Offering 17.



Figure 9. Packing of a skull mask, level 1. Offering 15.



Figure 10. Packing of a skull mask, level 2. Offering 15.

The conservation program consists of the diagnosis of every piece, cleaning and gluing together of fragments, as well as the reversion of old restoration processes when these were compromising the analysis and the stability of a piece. Each element was packed individually, using acid-free materials such as tybek and etaphon rigid supports.

Posterior to restoration, an analysis of skulls was carried out; this was divided in osteobiography and tafonomy. As part of the first, main characteristics of the individual were recorded, such as age, genre, health-disease conditions, skull deformation, and dental mutilation, among others. On the other hand, in the second group, the general sequence of mortuary treatments carried out by Mexica priests was recorded. Similarly, a sampling for DNA extraction was undertaken. The main results stemmed from these analyses are described bellow.

Osteobiography

In general terms it was corroborated that most of sacrificed individuals were males. Nevertheless, remains of infants and women have been detected with the same mortuary treatments. Likewise, the majority of sacrificed persons were between 20 and 30 years old; the absence of people elderly and infants younger than three is to be noted. Graphs summarizing this information are presented below.⁴

⁴ A large quantity of individuals could not be classified according to genre; this quantity was incremented by the child and sub-adult populations, as well as by the decayed state of numerous skulls. An evaluation to undertake anthropometric techniques and DNA analysis will be pondered later.

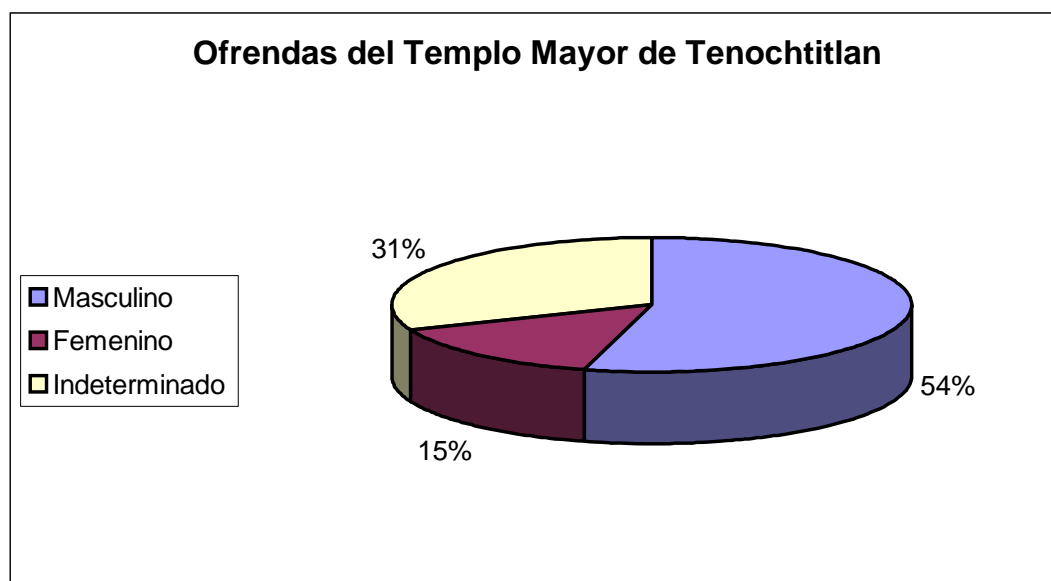


Figure 11. Genre determination. Values correspond to the sample pertaining offerings with NMI 74.

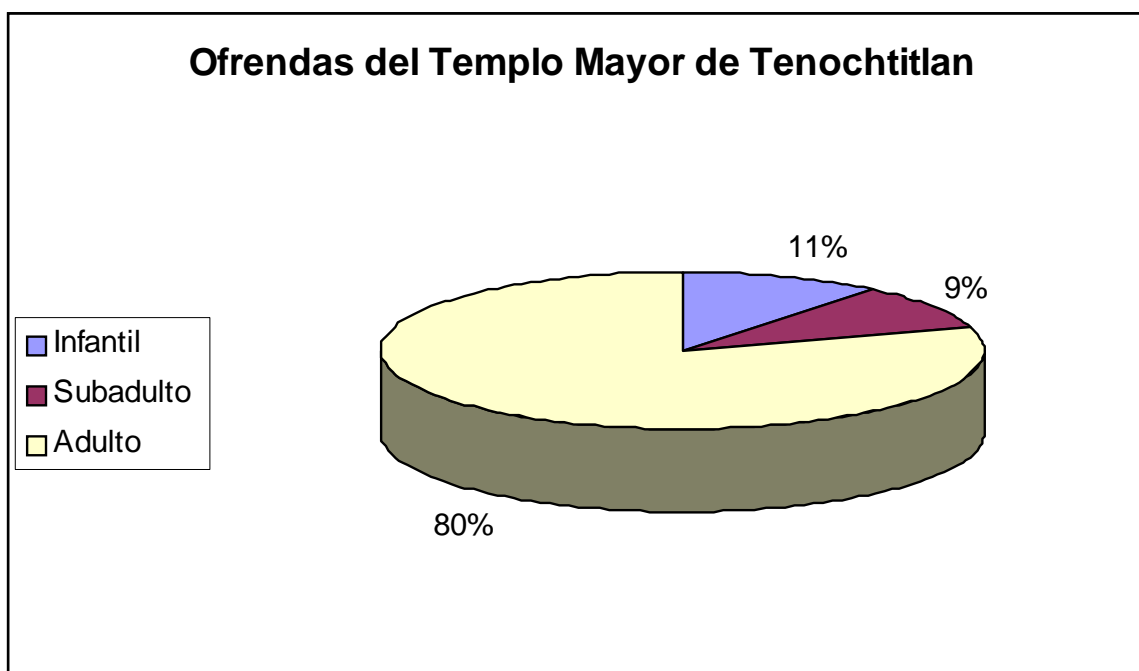


Figure 12. Age determination (in general). Values correspond to the sample pertaining offerings with NMI 74.

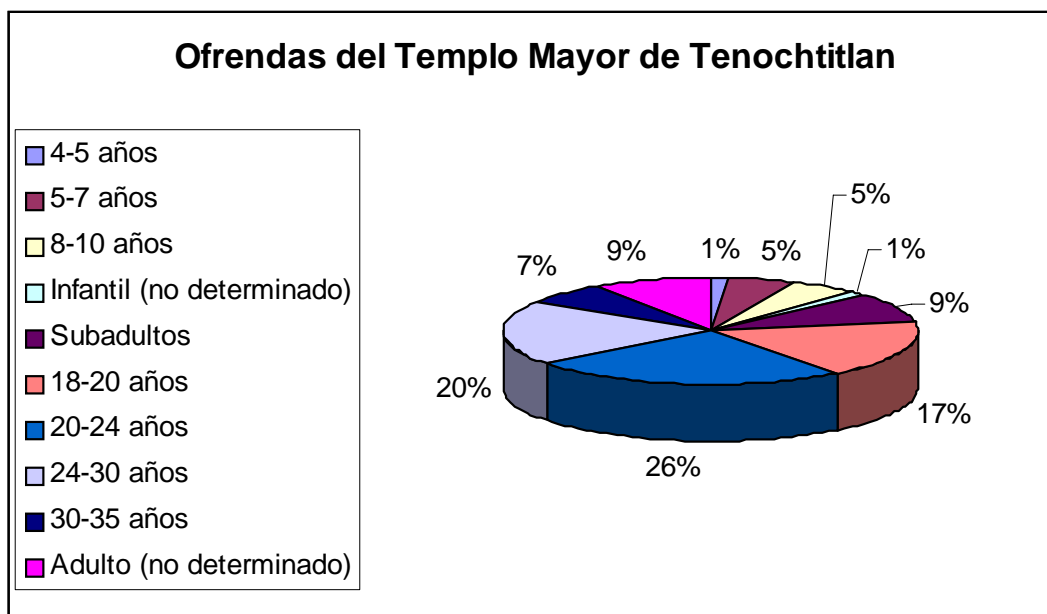


Figure 13. Age determination. Values correspond to the sample pertaining offerings with NMI 74.

A good health condition was found in the population, except for some ailments in the oral cavity, such as first and second degree caries as well as dental calculus. Few cases of porotic hyperostosis and cribra orbitalia were registered, as well as examples of nasal fractures occurred long before death. A severe infectious process in the maxillary of a male individual stands out and a frontal *perimortem* fracture, probably causing the death of a second male. The more relevant examples are being selected to undergo helical tomography, under the auspices of CT Scanner Mexico. There is not a selection pattern based on the health-disease condition of the individuals, as was detected in children sacrificed to Tláloc (Román and Chávez, 2005). This finding is logical if we consider that one of the main sources of captives was war. It is also feasible that among the sacrificed were *nextlahualtin* ("payments"), *xipe* (sacrificed in honor of Xipe Tótec) and *ixipitla* (God representations).

One of the observed characteristics in the collection was the presence of some cases of erected tabular skull deformations and dental mutilations, treatments associated with the elite, not very common in Tenochtitlán.⁵

Tafonomic analysis

The first aim of this part of the study was to reconstruct the general sequence of the preparation of the bodies. The marks encountered on the bones were registered and contrasted with the muscular and skeletal anatomy, which conditions the cultural modification of human remains. The marks found were mainly of the *postmortem* type; such would be the case of the following procedures: skin stripping, disjunction, flesh ripping, bone scraping, cleavage by abrasion and intentional fractures.

The contrast of materials with the muscular and skeletal anatomy was divided in two phases: observation of forensic cases and experimental (in isolated biological materials).⁶ Likewise, the observation of everyday routine carried out in the amphitheater of the Faculty of Medicine, allowed us to witness various procedures, such as flesh ripping, disjunction, and application of indirect heat to bone tissue, similar to those performed in the collection used in this study (González Reyna, personal communication, January 2006).

⁵ These individuals are priority for population analysis.

⁶ This was possible thanks to the auspices of the Faculty of Medicine at the University of México (UNAM).

The experimental part carried out with isolated biological materials enabled the observation of cut wounds inflicted by diverse tools. In this manner a data bank is being formed in which indentations caused in known conditions are filed, based on the technique proposed by Velázquez (2004). In the following text, a general description of the main forms of ritual death and mortuary treatments deduced from the archaeological evidence are described.

Sacrifice by heart extraction

The infant encountered in Offering 111 was the only currently archaeological evidence of this type of sacrifice found in this building.⁷



Figure 14. Offering 111, Great Temple. General view.

⁷ Currently an article is in preparation with López-Luján and Quezada Ramírez as co-authors.

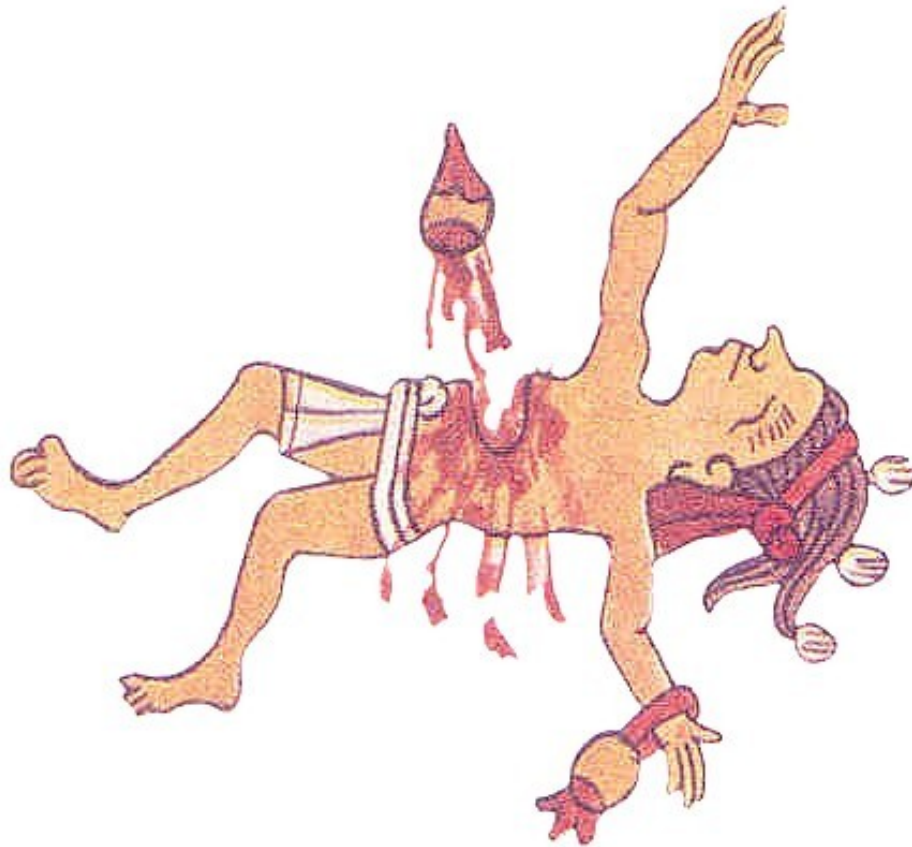


Figure 15. Sacrifice by heart extraction. *Tudela Codex*.

From the osteologic information, the following general sequence could be drawn. It is feasible that the infant was laid in the sacrificial stone as mentioned by historical sources. The indentations in the inner part of the ribs show that the entrance to the thorax was by way of the abdominal cavity. The priest must have slid his hand behind the heart for there is the presence of marks near the costo-condral joint. Subsequently, he cut the arteries and veins, by using the inner side of the ribs as support surface; a repetitive print pattern is evident.⁸ Finally, the child was placed at the feet of the staircase leading to the oratory of Huitzilopochtli.

⁸ The experimental work showed that these marks exhibited an exceptional resemblance with those made with the live edge of obsidian slivers.



Figure 16. Cut marks in the inner part of the ribs. Offering 111.

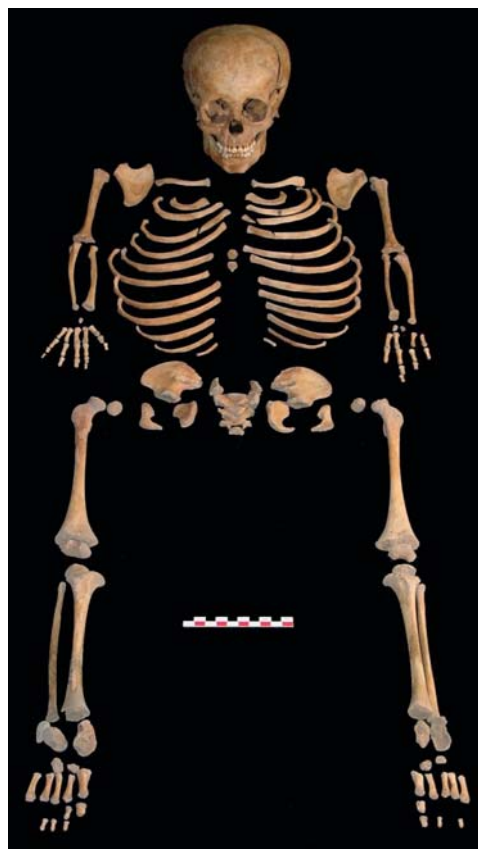


Figure 17. Laboratory analysis. Aspect of the infant's skeleton. Offering 111.

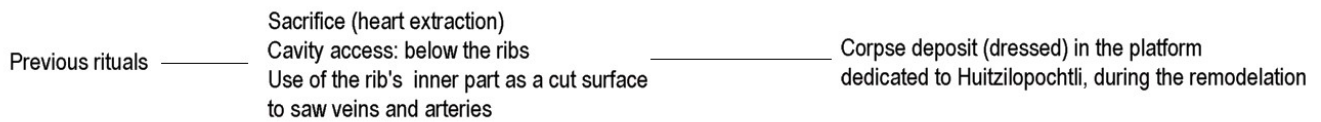


Figure 18. General sequence followed in the infant's sacrifice, Offering 111.

Decapitation: Trophy skulls, Tzompantli skulls and elaboration of skull masks

The registered marks indicate that Mexica priests handled diverse decapitation techniques. Some marks corresponded to cuts inflicted on the articular facet with fine tools, probably obsidian knives.⁹ Meanwhile, other marks identified blunt force trauma made with tools, probably flint or other hard stone. These indentations usually presented a "v" section and were localized in the vertebrae, which suggests the intention of severing the spinal cord by cutting the vertebral disks.¹⁰

All cases of decapitation were performed with the individual lying on his back. No matter the applied technique, it is a fact that priests possessed a privileged anatomical knowledge, reflected in their level of specialization. For this motive, they generally decapitated between the fifth and sixth cervical vertebrae.¹¹

⁹ In a similar manner to what has been reported for Teotihuacán (Sugiyama and López-Luján, 2006).

¹⁰ Experimentally, a bifacial flint knife may cause indentations of this type.

¹¹ We have to bear in mind that the first cervical vertebrae are designed for a special biomechanical function, head movement and support.



Figure 19. Example of a mark corresponding to short blunt trauma on the vertebral surface.



Figure 20. Example of a cut mark on the articular facet (C5).

By considering the anatomical characteristics, the depth of the marks and the absence of metallic instruments, it was concluded that the cause of death was not decapitation. Sliced throat, blunt force trauma, or heart extraction, just to mention a few, could have been the cause of death of these individuals. One case stands out; it refers to a male person presenting a depressive fracture and blood infiltration, corresponding to a blunt force blow on the frontal lobe. It suggests a *perimortem* wound linked to either a violent confrontation or a sacrificial practice.



Figure 21. *Perimortem* fracture probably related to the cause of death.



Figure 22. Individual with *perimortem* fracture (lateral view), in which the *postmortem* treatment can be appreciated.



Figure 23. Trophy skulls. Last deposit level in Offering 98, Stage IVb.

The deposit of trophy skulls is related to the consecration of the buildings as it is illustrated in the *Borgia Codex*. In the case of the Main Temple, skulls were deposited keeping the flesh intact, inside a cavity containing the offering.

Sacrificio ————— Decapitación ————— Depósito con tejidos blandos y vértebras cervicales en el último nivel de las ofrendas

Figure 24. General sequence in the trophy skull deposit.



Figure 25. Burial of a trophy skull inside a temple.
Borgia Codex, plate 4.

In reference to tzompantli skulls, their preparation implicated decapitation, flesh ripping, excision of cephalic mass and the removal of other soft tissues. Subsequently, two circular perforations were made, fracturing the temporal and part of the parietal bones by percussion. It seems that this procedure was carried out with a sharp instrument as shown in the archaeological evidence.



Figure 26. Marks left by the instrument used to fracture the temporal and parietal bones.



Figure 27. Marks left by the instrument used to fracture the temporal and parietal bones.



Figure 28. Skull exhibiting indirect exposure to fire. It was probably discarded as a consequence of bursting.

Other treatment practiced was the indirect heat exposure (boiling). It was probably used to help in the removal of soft tissues and excising the encephalic mass.



Figure 29. Tzompantli skull showing evidence of indirect exposure to fire. Detail.

All individuals registered marks corresponding to the main muscular insertions, thus implicating that they were ripped of their flesh before taking them to the Tzompantli.

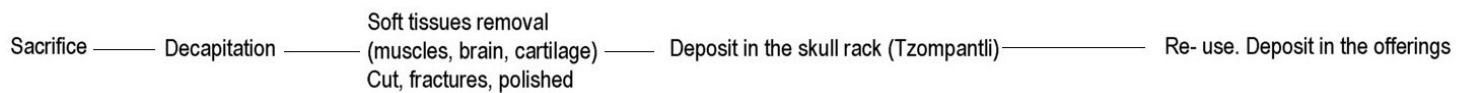


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