



Analysis of hair remains from a hunter-gatherer grave from Patagonia: Taxonomic identification and archaeological implications



Luciano Prates^{a,*}, Fernando Ballejo^b, Adriana Blasi^c

^a CONICET, División Arqueología, Facultad de Ciencias Naturales y Museo, Universidad Nacional de la Plata, Paseo del Bosque s/n, 1900, La Plata, Argentina

^b CONICET, Facultad de Ciencias Naturales y Museo, Universidad Nacional de la Plata, Paseo del Bosque s/n, 1900, La Plata, Argentina

^c Comisión de Investigaciones Científicas de la Provincia de Buenos Aires and Museo de La Plata, Paseo del Bosque s/n, 1900, La Plata, Argentina

ARTICLE INFO

Article history:

Received 19 March 2016

Received in revised form 23 May 2016

Accepted 26 May 2016

Available online xxx

Keywords:

Hair analysis

Patagonian hunter-gatherers

Cemetery

ABSTRACT

The results of the analysis of hair remains from a hunter-gatherer grave from northern Patagonia are presented in this paper. One of the samples analyzed consisted in hair that remained attached to the hide used to manufacture a small pouch left in the burial pit as a funerary offering. The second sample was taken from the inside of the same pouch. The hair taxonomic determination was performed by considering cross-sections of the hairs, the patterns of the medulla, and the shape and disposition of the cuticle scales by microscopic observation of molds of the hair surfaces. Samples were identified as *Lagidium viscacia* and *Homo sapiens*, respectively. These results provide the first evidence of both the exploitation of small mammal (*Lagidium*) hide and the offering of human hair in a grave, among Patagonian hunter-gatherers.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

From the early 20th century, the microscopic study of hair has been widely applied to identify mammal species within the scope of dietary studies of living faunal species, mainly in the analysis of pellets (Ballejo and De Santis, 2013), faeces (Perrin and Campbell, 1980), and stomach contents (Day, 1966) of predators. Though hair samples have also been used for the identification of mammals from archaeological deposits (e.g. Mansilla et al., 2011; Dove and Peurach, 2002; Capriles, 2002), the constraints for the preservation of fibers have limited the potential of this method. In this paper, the results of a study of hair from the Cueva Galpón site (northern Patagonia, Argentina) are presented. The samples of hair analyzed were collected from a leather pouch left as an offering in one of the mortuary contexts of the site: one is a small cluster of hairs that remained attached to the hide with which the pouch was made, and the other is a lock of hair that constituted the only content of the pouch (Fig. 1). The main subjects of this paper are to make accurate taxonomic identifications of hair samples obtained, to assess the taphonomic conditions for the survival of hair in the site, and to discuss the archaeological implications of these identifications at both local and regional scales.

2. The archaeological context

The hair samples come from Cueva Galpón, an archaeological site located on the eastern edge of the Pailemán Hills, in northeast Patagonia (Argentina) (41° 09' 30" S, 65° 47' 30" W, 430 m.a.s.l.), at the bottom of a rock shelter (Fig. 2A). The rock shelter is filled with a sandy-silty deposit (60–65 cm), sealed by an overlying layer of sheep dung (~0.40 cm thick). This layer is strongly compacted and dehydrated, and the presence of dark reddish brown organic sediment at the bottom (5YR 3/2) may suggest the occurrence of a basal layer of bat guano. Considering the origin of the rock shelter sediments, four main sources of detrital components can be defined: aeolian, from rocks detached from the bedrock roof, biological (dung and guano), and anthropogenic (bones, wood, grasses, and seeds) (Fig. 2 B,C,D). The archaeological record mainly consists of human remains and rock art (Carden and Prates, 2015). Over half (55%) of the bioarchaeological record found in Cueva Galpón was thermally altered (Serna, 2014). However, the intensity and manner in which the heat had affected the remains were extremely variable, which made it possible to differentiate two bone assemblages. One of them consisted in a concentration of fragmented bone specimens with traces of intense combustion: (a) white colouration (i.e., charring); (b) heat-induced cracks and morphological alterations (e.g. transverse cracks, patina fractures, longitudinal splitting, rolled-up edges, warping; Buikstra and Swegle, 1989; Owens, 2010; Gonçalves, 2011) and (c) the presence of a clinker or thermally altered portion of soft tissue. The second assemblage, located a few metres away from the paintings, was less concentrated and with evidence of a much more irregular combustion. These specimens showed signs of very heterogeneous burning, with

* Corresponding author.

E-mail addresses: lprates@fcnym.unlp.edu.ar (L. Prates), fernandoballejo@hotmail.com (F. Ballejo), ablasi@fcnym.unlp.edu.ar (A. Blasi).

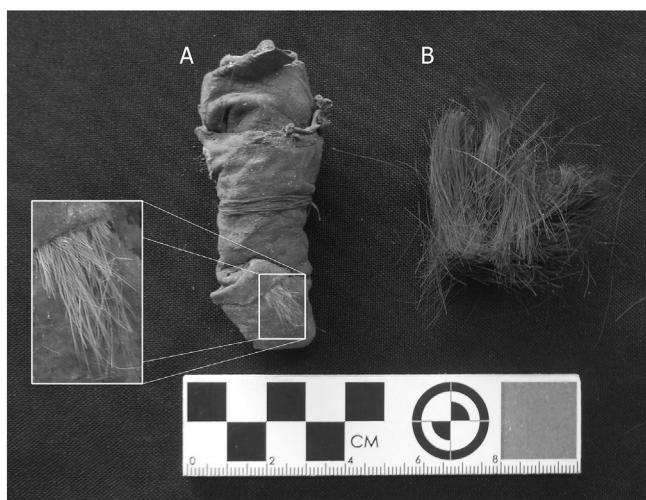


Fig. 1. Samples of analyzed hair: (A) leather pouch showing attached hair, and (B) lock of hair from within the pouch.

totally burnt and partially burnt elements, while others showed no evidence of burning. Along with human bones, other kinds of material were found (e.g. body ornaments, mollusk shells, ochre, pieces of cordage, leather ropes, textiles, wood, etc.); some of these items also showed traces of burning. One of the most outstanding features of the site was this erratic combustion of sediments, bones and artifacts. The samples of hair analyzed in this paper were associated with the second mortuary context, dated ca. 3300 ^{14}C years BP: 3314 ± 51 (AA-91,544) and 3264 ± 38 (AA-91,543) years BP (Carden and Prates, 2015).

3. Materials and methods

The pelage of most mammals consists of two main kinds of hair: guard hairs and underfur. In cross-section, hair shows three layers from the outside in: 1) the cuticle, which is made of overlapped scales covering the hair surface; 2) the cortex, which is made of spindle-shaped cells; and 3) the medulla, which is made of cells separated by air vesicles, forming a shaft through the middle of the hair. Guard hairs have taxonomical value since they usually have diagnostic morphological features that allow the delimitation of species or groups of

species. Such features can be recognized by observing the pattern of the medulla, the shape and disposition of the cuticle scales, the distance between scales, and the cross-section and width of the hairs (Brunner and Coman, 1974). The pelage covering the dorsal part of the body is the one best suited for morphology-based identifications (Chehébar and Martín, 1989), due to its greater resistance to both physical and chemical post-mortem processes. The proximal part of the hair is also suitable to make identifications because it displays a wider range of morphological variations among species and shows more marked features (Vázquez et al., 2000).

Preparation of the samples before analysis included washing the hairs to remove any impurities, using only water and detergent. With the aim of facilitating the observation and analysis of the pattern and organization of the scales, imprints of the hair surfaces were copied by creating molds. These molds were made by placing the hairs on a glass slide and coating them with a thin layer of colourless liquid enamel, which was removed after allowing it to dry for a few minutes; the observation of these molds was carried out by transparency under a magnification of 400x. Medullas were also observed by transparency under a microscope, and contrasted with comparative samples from local species.

4. Results

The sample collected from the pouch hide is approximately 12 mm long. The colour of the hair is light in the proximal portion and it darkens towards the distal end. In cross-section, most of the hair corresponds to the medulla and only a thin portion is occupied by the cortex. The medulla has air vesicles partially separated from each other, forming a shaft through the middle of the hair. This medulla's setting is described as ladder-like and reticular by Chehebar and Martín (1989) (Fig. 3A). Scales have smooth edges and are arranged transversely to the longitudinal axis of the hair, so they are wider than long and take the form of a "mosaic" setting, sensu Chehebar and Martín (1989) (Fig. 3C). This general appearance matches the one of the hairs of *Lagidium viscacia* (mountain viscacha or *pillquín*) (Fig. 3B, D) and it differs from those of other mammals inhabiting the region, such as *Dolichotis patagonum* (Patagonian mara), with differences at a medullar level. The medulla of maras shows a sponge-like, reticular setting, with smaller and more randomly arranged air vesicles than in *L. viscacia*.

The second analyzed sample, which was inside the leather pouch, was taken from a lock of hair about 15 mm thick, and composed of highly preserved hairs 55 mm long. Hairs are dark brown, and their hue is



Fig. 2. Cueva Galpón site: (A) Excavation area; (B) Rock hand sample (rhyolite) (C) Diverse components of the very coarse sand, medium sand, fine sand and silt fractions; bones with different thermally altered stages; and vegetable matter.

Download English Version:

<https://daneshyari.com/en/article/7445696>

Download Persian Version:

<https://daneshyari.com/article/7445696>

[Daneshyari.com](https://daneshyari.com)