



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.e-jds.com](http://www.e-jds.com)



Perspective article

# A photographic record of the ritual tooth extraction of Taiwan aboriginals during the Japanese colonial period

Feng-Chou Cheng <sup>a,b,c</sup>, Ling-Hsia Wang <sup>d\*\*</sup>,  
Chun-Pin Chiang <sup>e,f,g,h\*</sup>

<sup>a</sup> Chia-Te Dental Clinic, New Taipei City, Taiwan

<sup>b</sup> School of Life Science, College of Science, National Taiwan Normal University, Taipei, Taiwan

<sup>c</sup> Science Education Center, National Taiwan Normal University, Taipei, Taiwan

<sup>d</sup> Center for the Literature and Art, Hsin Sheng Junior College of Medical Care and Management, Taoyuan, Taiwan

<sup>e</sup> Department of Dentistry, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan

<sup>f</sup> Graduate Institute of Oral Biology, School of Dentistry, National Taiwan University, Taipei, Taiwan

<sup>g</sup> Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan

<sup>h</sup> Institute of Oral Medicine and Materials, College of Medicine, Tzu Chi University, Hualien, Taiwan

Received 6 March 2025

## KEYWORDS

Taiwan;  
Ritual tooth  
extraction;  
Aboriginals;  
Dentistry

\* Corresponding author. Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and Institute of Oral Medicine and Materials, College of Medicine, Tzu Chi University, No. 707, Section 3, Chung-Yang Road, Hualien 970, Taiwan.

\*\* Corresponding author. Center for the Literature and Art, Hsin Sheng Junior College of Medical Care and Management, No. 418, Gaoping Section, Zhongfong Road, Longtan Township, Taoyuan 32544, Taiwan.

E-mail addresses: [milkegg5452001@gmail.com](mailto:milkegg5452001@gmail.com) (L.-H. Wang), [cpchiang@ntu.edu.tw](mailto:cpchiang@ntu.edu.tw) (C.-P. Chiang).

Compared to today when smartphones allow us to take photographs at will, the photography in the early 20th century was not only expensive but also a professional skill. The earliest photography technique of Taiwan was introduced during the Japanese colonial period. At that time, people who ran photo shops in Taiwan had to first learn photography technique in Japan (mainly in Tokyo) and obtain a license.<sup>1</sup> The Katsuyama Photo Studio, run by Yoshisaku Katsuyama,

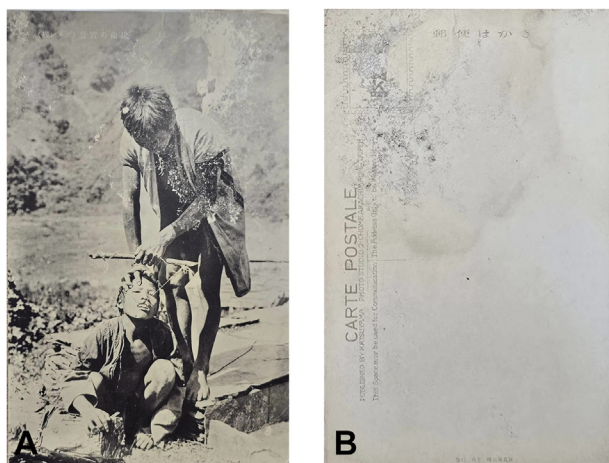
<https://doi.org/10.1016/j.jds.2025.03.007>

1991-7902/© 2025 Association for Dental Sciences of the Republic of China. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

started in Kyomachi, Taipei City around 1927. It had advanced photographic equipment and professional photographers, and its business included providing professional photography and publishing and selling postcards with photographic themes. The images of their postcards showed the topography, natural scenery, bronze statues and monuments, cities and villages, customs of the local people, customs of the aboriginal people (indigenous culture) in various parts of Taiwan. These images were very valuable historical materials for studying the Japanese-ruled Taiwan.<sup>2</sup> This study reported a photographic record of the ritual tooth extraction of Taiwan aboriginals from a postcard published by the Katsuyama Photo Studio.

In this article, a photograph on the postcard represented the ritual tooth extraction of Taiwan aboriginals, as shown in Fig. 1. This photograph was one of a series of images of Taiwan's aboriginal customs (indigenous culture) taken by the Katsuyama Photo Studio. Printed above the photograph was a title in Japanese kanji and katakana: "The real scene of tooth extraction (Bunun group)" (Fig. 1A). Moreover, on the back of the photograph, printed below the postcard was a title in Japanese kanji: "Published by the Katsuyama Photo Studio, Taipei City" (Fig. 1B). There is an identical photograph in the collection of East Asia Image Collection, Special Collections and College Archives, David Bishop Skillman Library, Lafayette College. According to the description, this photograph showed the historical scene of tooth extraction by pulling in the Bunun (Vaqlas Tribe) group in 1935.<sup>3</sup>

The modern research concluded that the tooth extraction technique employed either striking or pulling, broadly categorized into two clusters of northern and southern aboriginal groups of Taiwan. The five aboriginal groups living in the northern region of Taiwan (Atayal, Saisiyat, Sediq, Thao, and Truku) typically placed one end of a mediator against the tooth's surface and hammered the other end with a striker to facilitate the tooth extraction.



**Figure 1** The photograph on the postcard showing the ritual tooth extraction of Taiwan aboriginals. (A) Printed above the photograph was a title in Japanese kanji and katakana: "The real scene of tooth extraction (Bunun group)". (B) On the back of the photograph, printed below the postcard was a title in Japanese kanji: "Published by the Katsuyama Photo Studio, Taipei City". This postcard is the personal collection of Feng-Chou Cheng, the first author of this article.

The materials used as mediators and strikers varied as metal, stone, or wood. The other four groups living in the southern region of Taiwan (Bunun, Hla'alua, Kanakanavu, and Tsou) employed one (or two) wood or bamboo sticks with a thread attached to one or both ends. The southern-associated procedure included bundling the tooth tightly with thread and applying force on the sticks that attached to the thread until the tooth was dislodged.<sup>3</sup>

Furthermore, according to the observations of the Japanese scholar Tadasu Suzuki at that time, this custom of the ritual tooth extraction was seen in both men and women of the Atayal, Bunun, and Tsou groups. People had the bilateral maxillary anterior teeth removed, including those having both the lateral incisors removed or those having both the lateral incisors and canines removed. In the case of tooth extraction, there was no fixed performer like in the case of tattooing. In most cases, it was done by the parents themselves. The timing for the tooth extraction was when the individuals were between the ages of 8 or 9 years old and 12 or 13 years old. During extracting a tooth, they typically placed a piece of wood against the tooth's surface and hammered it with the back of a machete to quickly loosen the tooth root. Then the tooth was hung with a twine, and the other end of the twine was tied to a tree branch about five or six inches long. The branch was held tightly and pulled outward to extract the tooth. Afterwards, the wound was smeared with cigarette ash and the extracted tooth was buried outside or in a place where water drips from the eaves. If you ask them why they extract their teeth, they will tell you that there is no deep meaning behind it and it is just an ancient custom, not for the purpose of making their smile more charming, but to prevent the teeth from growing overlappingly. These ethnic groups with the custom of extracting teeth did not chew betel nuts, while those groups with the habit of chewing betel nuts did not have the tooth-extracting custom. The legend of tooth extracting was widely circulated among the Tsou people. The Paiwan, Yami, and Amis peoples without the custom of extracting their teeth, preferred to chew betel nuts, and therefore they often painted their teeth black as a form of decoration to make their teeth more beautiful. The teeth were dyed with the liquids from plants named Tamrun, Bud, Miriigi, Rachel, and Chin by the Paiwan people.<sup>4</sup>

In conclusion, this photograph showed perhaps an aboriginal father performing the ritual tooth extraction on his teenage son by using traditional tools in the Bunun (Vaqlas Tribe) group in Taiwan around 1935. The tooth being extracted was the right maxillary lateral incisor of this aboriginal teenager. At this moment, the root of the tooth being extracted had been loosened after the previous tapping operation, making it easy to be pulled out of the tooth socket.

Due to the ethnographic and photographic records indicating that Taiwan aboriginals had the custom of the ritual tooth extraction, the research on tooth extraction practices at prehistoric archaeological sites in Taiwan has been a subject of concern for physical anthropology and archeology scholars since the excavation of the Kenting Site (formerly the Kentingliao Site).<sup>5</sup>

The first formal academic archaeological excavation in Taiwan was carried out by Dr. Atsushi Miyahara, a professor of the Taiwan Government Taipei Medical College, at Kentingliao in 1931. After 1933, Dr. Heijirou Oohashi led his

dental staff from the Taiwan Government Taipei Hospital to participate in the related research on physical anthropology and archaeology. He conducted the dental surveys on the Stone Age human skulls excavated in Taiwan and investigated the oral customs of the indigenous people at that time. This marked the beginning of physical anthropological research on prehistoric human specimens in Taiwan.<sup>6</sup> The interpretation of a photographic record of the ritual tooth extraction of Taiwan aboriginals during the Japanese colonial period suggests the historical significance of the early Taiwan dental profession involving anthropology and archaeology. Dr. Oohashi may be the first dentist in Taiwan to participate in the archaeological research. Today, the knowledge and technology of modern dentistry are growing rapidly and explosively. In addition to clinical applications, we believe that dentistry still has positive value in contributing to the fields other than clinical practice, such as anthropology and archaeology.

### Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

### Acknowledgments

None.

### References

1. Hsu YH. *The study of "Taiwan Shashin Cho" during Japanese colonial period*. Master's thesis. Taipei: National Chengchi University, 2011 [In Chinese, English abstract].
2. Aboriginal sericulture. *Taiwan cultural memory bank*. Available from: [https://tcmb.culture.tw/zh-tw/detail?id=268615&indexCode=Culture\\_Object](https://tcmb.culture.tw/zh-tw/detail?id=268615&indexCode=Culture_Object). [Accessed 1 March 2025].
3. Ritual tooth ablation in ancient Taiwan and the Austronesian expansion. *Archaeol Res Asia* 2024;40:100543.
4. Suzuki T. *Taiwan aboriginal customs*. Taipei, Taiwan: Aboriginal Friend Publishing House, 1932 [In Japanese].
5. Chiu HL. The Social meaning of ritual tooth ablation behavior in prehistoric Taiwan: a case study at the Shihchiao site from the Iron-Age Niasung Culture. *J Archaeol Anthropol* 2010;73:1–60 [In Chinese, English abstract].
6. Oohashi H, Matsumura S. The dental observations of the skulls of Stone Age human specimens (A3) excavated in Taiwan. *Jpn Dent Sci Rev* 1933;26:12–35 [In Japanese].