

## Endocrinology and Art



### ACROMEGALY AND GOITER IN THE PRE-COLUMBIAN, MESOAMERICAN POPULATION

This figure, dated 785 AD, is carved on the left side of the back of a monumental seat called Throne 1. It belongs to the Classic period of the pre-Columbian, Mesoamerican Maya culture, and is located in the Museum of Archeology and Ethnology at Guatemala City, Guatemala (reproduced with permission of the Museum Director, Carla Monzon De Gimenez). It portrays a male subject, and as suggested by ritual ornaments (earrings and covering feathers) and large shoulders, likely the father of Ruler 7 of Piedra Negras, one of the Maya cities hidden in the tropical forest of Guatemala (1). Like many other Maya bas-reliefs and drawings, it exhibits facial prognathism, prominence of the supraciliary arch and bulging of the frontal eminence. These are typical ethnic features of the

ancient Maya population (1) and possibly the result of cranial deformities imposed by ritual practices from childhood (2). However, the figure also has morphologic peculiarities, not usually observed in other Maya portraits. In particular, the wide anterior-posterior diameter of the jaw suggests prominent inferior maxillary development, large muscles in the medial portion of the hand (arrow) may reflect hypertrophy of the hypothenar eminence, thickening of the nails (arrowheads) may be indicative of soft tissue proliferation, and swelling and fullness of the anterior part of the neck is consistent with thyroid enlargement. Since Maya artists tended to depict members of regal families with great accuracy in their art (1), we raise the possibility that this individual may have had acromegaly and a goiter.

We are unaware of writings in which acromegalic features were perceived as a medical problem in the Maya culture (3). However, it is clear that the ancient Maya population recognized the concept of gigantism, as supported by their religious beliefs (2). It is also conceivable that gigantism may not have been interpreted as abnormal and considered an attribute of power. Along these lines, it is of interest that in Aguateca in central Peten, the city rulers of 700-800 AD are depicted in ritual stelae as tall and muscular (personal observation). Nerve entrapment, as occurs in the carpal tunnel syndrome commonly observed in association with acromegaly, may also have been recognized amongst the neurologic syndromes described by the ancient Mayas and recorded in the *Books of Chilam Balam* around 1350 AD (2). There is also evidence that ancient Mayas had a remedy for neuropathic pain using a poultice comprised of cabbage leave and castor oil, and by rhythmically pinching the flesh between the thumb and forefinger (4), presumably to facilitate movement of perineural edema away from the entrapped radial nerve. Further evidence for the possibility of acromegaly in ancient Maya population has been suggested by Robertson M.G. et al. (5), describing acromegalic features of a sculpture carved into the Inscriptions sarcophagus tomb in Palenque, Mexico, which was also a region occupied by ancient Mayas. Acromegaly is also commonly associated with the development of a goiter (6) and evidence for goiter in the pre-Columbian period is suggested in the Badianus Codex (1522 AD), in which a treatment for neck enlargement is recorded (7). Further evidence for goiter in the ancient Maya population was reported by Borhegly S. and Scrimshaw N. (8), based on the prominence of the neck seen in anthropomorphic Maya ceramics. However, because iodine deficiency was prevalent during the ancient

Maya period (2), this might have been a more common etiology for goiter in the Maya population. We conclude that this sculpture, some of the traditional Maya beliefs and healing methods, and other evidence for morphologic deformities depicted in ancient Maya art, support the possibility for the existence of acromegaly and/or goiter in the Mesoamerican population during the pre-Columbian period.

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