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ABSTRACT

Two ichthyosaur centra have been collected from the lower Cretaceous (Aptian) Apon Formation of the Sierra de Perijá in western Zulia State, Venezuela. One of the centra displays a single rib tubercle and double tubercles on opposing sides. A brief discussion of the centra and American Cretaceous ichthyosaurs in general is given. This is the first report of ichthyosaurian remain from Venezuela.

RESUMEN

Dos cuerpos vertebrales de ictiosauro han sido hallados en capas de la Formación Apón (Aptiense) de la Sierra de Perijá (Estado Zulia) Venezuela. Una de las vértebras muestra una proyección sencilla de un lado y un par en el lado opuesto. El artículo es una breve discusión de los especímenes, así como también, ictiosauros cretácicos americanos; constituyendo además el primer reporte de restos de ictiosauros en Venezuela.

INTRODUCTION

Two ichthyosaurian vertebrae centra have been recovered from the lower Cretaceous of the Sierra de Perijá in western Zulia State, Venezuela. The centra were each discovered encapsulated in dense discoidal calcareous lenses commonly referred to as concretions in shale of the Machiques Member, Apon Formation. The Machiques Member is considered to be of Aptian age (Gonzalez de Juana.et. al., 1980; Renz. 1982). The concretions were of the type and size common in the Machiques Member, and had been exposed during quarry operations at the Rosarito Quarry, just south of where the stream Quebrada La Gé leaves the Perijá mountain front (Figure 1). One of the centra is unusual in that it demonstrates both single and double rib tubercles, on opposing sides of the animal, so that the centrum does not display bilateral symmetry. The specimens are referred to the Cretaceous genus ***Platypterygius*** Huene, and have been cataloged as part of the permanent collection of the Paleontology Section, Museo de Biología, La Universidad del Zulia, as MBLUZ P- 48 and MBLUZ P-365.

DISCUSSION

The sizes are larger than those of most other American Cretaceous ichthyosaur centra with respective diameters of 137mm and 132mm measured transversely. The specimens are amphicoilous and their general proportions are comparable to other Cretaceous species (Slaughter and Hoover, 1963). Detailed dimensions are listed inTable 1.

The centra have been fractured and deformed due to compression and tectonic stress. In addition, MBLUZ P-365 has been partially destroyed due to diagenetic processes. The anterior face of MBLUZ P-48, wich was not protected by the matrix of the concretion, is also deformed. For these reasons, the measurements in Table 1 are sometimes approximated and probably differ slightly from those of the original natural bone.

Centrum MBLUZ P-48 (Plate 1.) is sub-circular as there are flattened areas on both upper flanks near the neurapophysis,as well as a slight flattening along the ventral surface between the tubercles. The posterior face shows traces of a smooth peripheral surface approximately 13mm wide.

The most notable features are the tubercles. The left hand ventral-lateral side (as viewed posterior to anterior) displays the typical ichthyosaurian double tubercles as those of a dorsal vertebrae, while the right hand ventral-lateral side shows only a large single tubercle (Plate 2). The condition appears congenital and not due to post-trauma repair. Considering the low position of the tubercles, this aspect could mean that the vertebrae was transitional between dorsal and caudal sections.

This centrum displayed part of the anterior face exposed in the concretion when collected. The single large tubercle shows slight signs of abrasion, suggesting some transportation prior to deposition. Other concretions in the same shale have yielded numerous specimens of the ammonite ***Deshayesites columbianus*** Riedel of Aptian age (Renz, 1982). The concretions also contain other ammonites, gastropods, pelecypods, and fragmentary fish remains.

The centra MBLUZ P-365 is dorsal. This specimen was completely encapsulated in matrix, however, one side of the concretion and bone had been partly dissolved and covered by layers of travertine. Only traces of the upper tubercle bases can be seen while the lower tubercles are more complete. Traces of a smooth peripheral surface can also be seen on both faces.

The two centra were collected approximately 130 meters apart but their positions indicate that they were from the same stratigraphic level in the quarry.

Ichthyosaurs occur in the lower Triassic (Carroll, 1988) and extend into the Upper Cretaceous as late as the Upper Campanian in Canada (McGowan, 1973) but in the Cretaceous their numbers seem to have been greatly reduced (Romer, 1966). All American and most other Cretaceous forms are usually included in the genus ***Platypterygius*** in which tentatively seven species have been recognized, often with wide geographic separation (McGowan, 1972). For this reason, even though single centra are usually inadequate for generic assignment (Slaughter & Hoover, 1963), the Venezuelan centra have been provisionally assigned to this genus.

Ichthyosaur species may have had wide geographical and temporal ranges (McGowan, 1972, 1973, 1978).

Platypterygius americanus Nace has been found in several localities of western North America primarily from the Albian (Slaughter & Hoover, 1963), and ***Platypterygius hauthali*** Huene has been described from the Neocomian of southern Argentina (McGowan, 1972). McGowan (1972) rejected material reported in 1963 from Colombia, interpreting it as non-ichthyosaurian. However, recently discovered remains said to be ichthyosaurian have been recovered from the Perijá range in north eastern Colombia (Angel Viloria, personal communication). There have been very few reports of Cretaceous reptilian fossils of any type in Venezuela (Odreman & Medina, 1984). The centra described here are the first Venezuelan ichthyosaurian remains so far reported.

ACKNOWLEDGMENTS

I would like to thank Jhonny Casas of Maraven S.A. in Caracas, and Ramon Acosta and Angel Viloria of MBLUZ in Maracaibo for their support during collection and study. Permission to collect in the Rosarito quarry were given by Ing. Américo Fernández and Sr. Acosta of C.C. Faria, S.A. to whom I would also like to express my gratitude. Also, I would like to thank the personnel of Western Atlas International, Core Laboratories in Maracaibo for the use of equipment during preparation of the specimens and this publication. I am indebted of Dr. Roger Higgs of Maraven S.A. in Caracas for helpful suggestions and review of the original draft of this study. The final manuscript was typed by Georgette Salazar de Escobar.

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TABLE 1. Measurements of Venezuelan Ichthyosaur Centra

	MBLUZ P-48	MBLUZ P-365
Centrum Length	47 mm	58 mm*
Centrum Height at sagittal plane	137mm	140 mm*
Maximum Transverse Diameter (excluding tubercles)	137 mm	132 mm*
Distance Between Left Rib Tubercles Measured Center to Center	30 mm	42 mm*
Distance Across Left Rib Tubercle Faces(including distance between tubercles)	46 mm	64 mm*
Distance Across Right Rib Tubercle Face	28 mm	-

*Approximate measurements

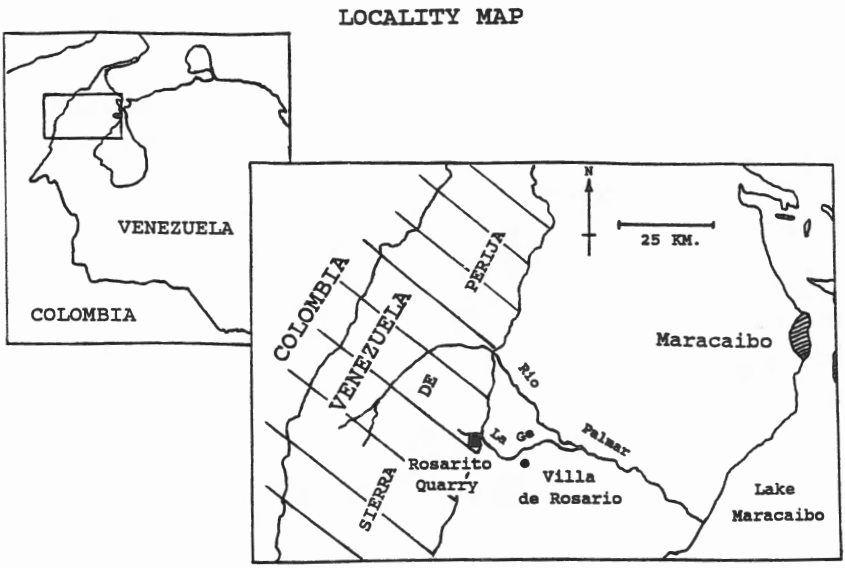

Figure 1. Location of the Rosarito Quarry near Quebrada La Gé where the Apon Formation is exposed along the mountain front of the Sierra de Perijá, Zulia State, Venezuela.

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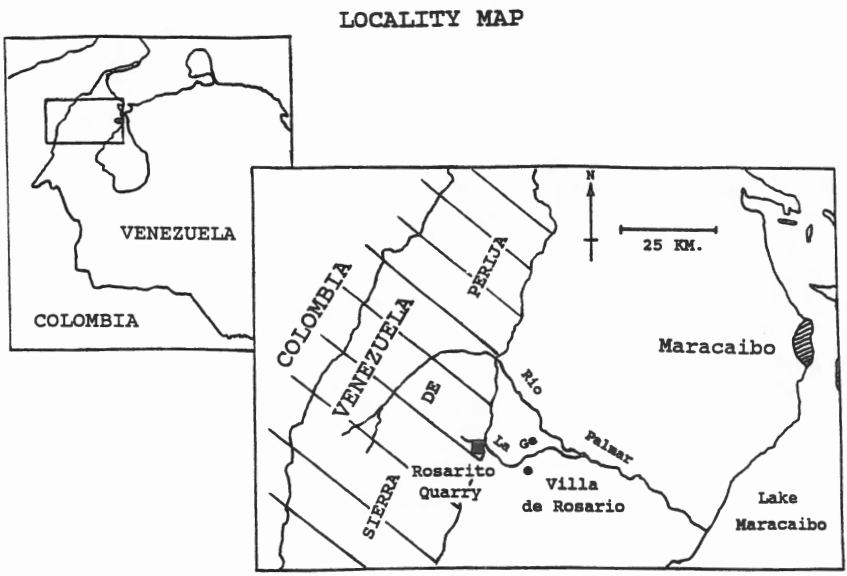

Figure 1. Location of the Rosarito Quarry near Quebrada La Gé where the Apon Formation is exposed along the mountain front of the Sierra de Perijá, Zulia State, Venezuela.

Plate 1. Anterior view of MBLUZ P - 48, an ichthyosaur centrum from the Apon Formation, Machiques Member (Aptian), of the Sierra de Perijá, western Zulia State, Venezuela.

Plate 2. View of MBLUZ P-48 showing detail of the rib tubercles.