

**A revision of *Edentosuchus tienshanensis* young
from the Tugulu Group of Xinjiang Autonomous Region**

by

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Abstract

The text conducts a revision and supplementary descriptions of *Edentosuchus tienshanensis* erected by C.C. Young in 1973. The family Edentosuchidae is now reassigned to the suborder Mesosuchia based upon cranial and vertebral characters. A preliminary discussion is undertaken regarding the ontogeny of the species and functional morphology of the dentition.

Introduction

Edentosuchus tienshanensis Young 1973 was initially described in the volume entitled *The Pterosaurian Fauna from Wuerho, Sinkiang, Reports of the paleontological expedition to Sinkiang (II)*. Young described the extremely autapomorphic characters of this small crocodylian skull, including the presence of palatal teeth and heterodont mandibular dentition, though maxillary dentition was not preserved. The initial assignment of this specimen to the Protosuchia provoked a great deal of attention and interest among paleontologists as this genus represented the only member of the suborder in the Cretaceous, and several workers in the field expressed both skepticism and objections to the original diagnosis. Young distinctly misinterpreted this crocodile's cranial characters and as such a revision of the initial work is warranted. Most recently, more advanced preparation of the specimen was undertaken to reveal detailed construction of the braincase which provides the basis for the emended diagnosis and supplementary description in addition to enriching the knowledge of Mesozoic crocodylian braincase construction.

Description

The first emendation of the original author's description concerns the statement that the type specimen V3236(1) represents "a large portion of a skull," which, in actuality, includes only the posterior cranium and parietal portion (from the orbit to the posterior parietal) with a fragmentary cranium, the anterior portion of a fused pair of mandibles and their broken posterior ends, seven cervical vertebrae, three dorsal vertebrae, and a proximal femur. The paratype V3236(2) is represented by a small right mandible.

Revised diagnosis: Skull is small with a posterolaterally expanded squamosal, posterior cranial platform is broadened, postorbital is small and bounded laterally by the squamosal, supratemporal fenestra is small, orbit is large, interorbital region is narrow, auditory canal is deep, anteromedial branch of the quadrate lies in the supratemporal fenestra, is laminated between the squamosal and parietal, constitutes the posterodorsolateral portion of the fenestra and together with the parietal encompasses the foramen for the orbitotemporal artery. Within the cranium, the prootic and laterosphenoid are elongated causing the wide separation of the fenestra ovalis from the trigeminal foramen and the trigeminal from the trochlear foramen. Mandibular symphysis is extremely elongated but the splenial does not contact it, mandibular dentition is conspicuously heterodont with a pair of conical incisiform teeth, a pair of thick and large caniniform teeth, and seven pair of rounded columnar postcanine teeth. The posterior end of the angular is a nearly right-angled ventral process that is suspended ventral to the articular and surangular and does not extend to the terminus of the articular. Vertebrae are platycoelous.

Specimen description: Dorsal cranial elements are represented by a pair of posterior prefrontals at the medial side of the orbits, a majority of the frontals, a large portion of the left postorbital, medial portion of the left and right postorbitals, a fragmentary parietal, a pair of anterior quadrates, and left squamosal. Dorsal surfaces are deeply sculptured (Fig. 1A).

The frontals are fused with delicate and compact nearly radiating and asymmetrical surficial ornamentation. The anterior portions of these elements are broken, and the posterior suture with the parietal is indistinct, but from a ventral perspective the suture for contact with the postorbital is

discernible. The frontal does not extend to contribute to the margin of the supratemporal fenestra. It may be determined from what is preserved of the frontal that the orbit was elongated with a length exceeding the length of the supratemporal fenestra. Furthermore, the interorbital breadth (seven mm) is slightly narrower than the intertemporal breadth (nine mm). The major portion of the parietal has been broken but its anterior portion suggests that the left and right elements were fused.

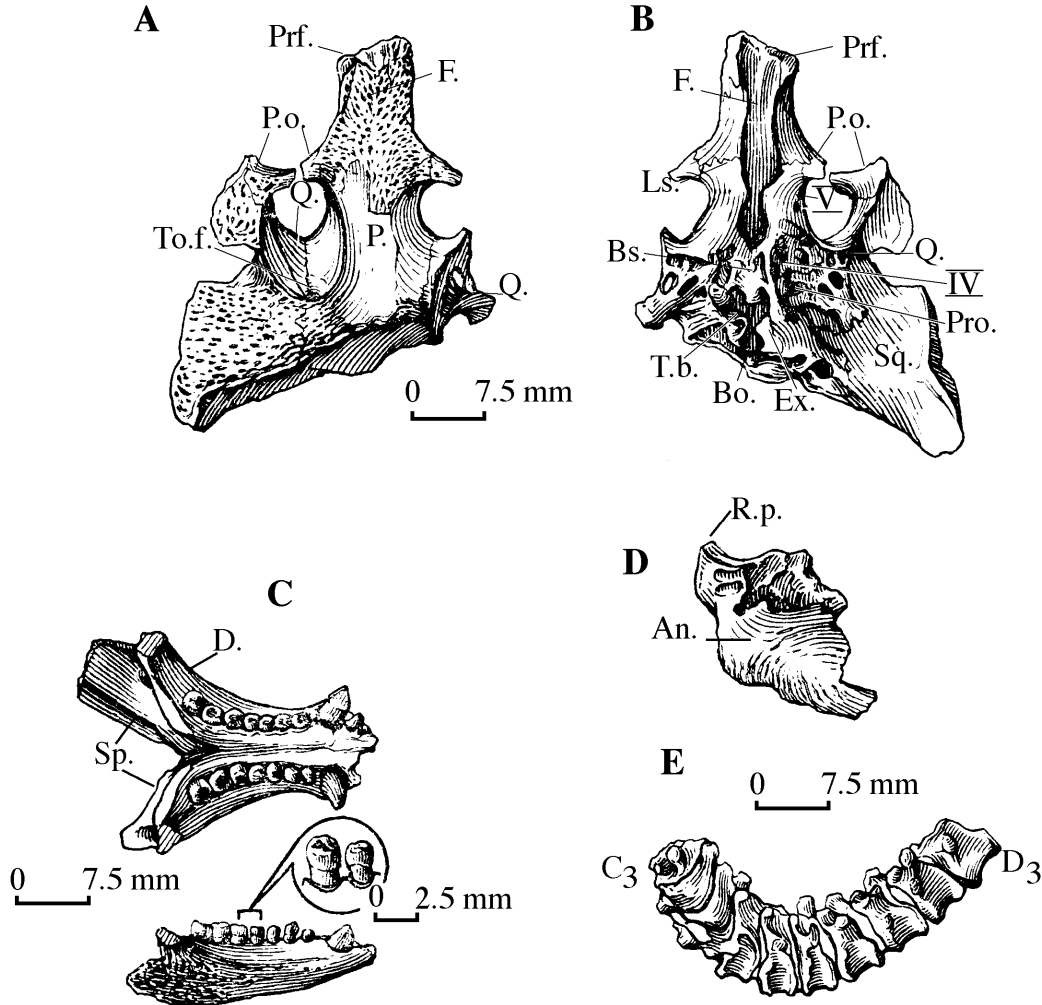


Figure 1. *Edentosuchus tienshanensis* Young 1973. A. Dorsal view of skull; B. Ventral view of braincase; C. Dorsal and lateral view of mandible; D. Terminal lateral view of right ramus. E. Lateral view of vertebrae.

An.-angular; Bo.-basioccipital; Bs.-basisphenoid; C3-C9-cervical vertebrae 1-9; D.-dentary; D1-D3-dorsal vertebrae 1-3; Ex.-exoccipital; F.-frontal; Ls.-laterosphenoid; P.o.-postorbital; Prf.-prefrontal; Pro.-prootic; R.p.-retroarticular process; Q.-quadrate; S.-splenial; Sq.-squamosal; T.b.-tympanic bulla; To.f.-foramen for the temporo-orbital artery; V., IV.-foramen for corresponding cranial nerves.

An interesting character of the skull is the claviform anteromedial portion of the quadrate which is laminated between the parietal and squamosal deep within the temporal fenestra and where its medial margin maintains a plicated suture contact with the parietal but lateral margin is a perfectly straight and smooth contact with the squamosal. Its anterior end constitutes the posterodorsolateral portion of the supratemporal fenestra and the posterior portion unites with the parietal to surround the foramen for the orbitotemporo artery. The margin of this foramen

displaces the squamosal. This phenomenon is also documented in the extant *Crocodylus porosus* and the Triassic *Orthosuchus* from Lesotho, South Africa. However, on the vast majority of Crocodylia this region of the cranium is composed of a direct contact between the parietal and squamosal (Iordansky, 1973) which, at their posterior end, envelope the orbitotemporo foramen, anteriorly they unite with the postorbital to compose the dorsal margin of the supratemporal fenestra, and the quadrate is only in contact ventrally.

Only a small piece of medial squamosal is broken, the occipital surface is very slightly shifted in position, and the boundary line for the occipital is indistinct, although the remaining elements are all well preserved. The parietal surface is covered with delicately compact ornamentation while the internal surface of the supratemporal fenestra is smooth and glossy to facilitate the external adductor musculature of the mandible. In the Crocodylia in general, the squamosal generally forms the two posterior angles of the dorsal cranial platform and its breadth exceeds that of the postorbital preceding it, with the dorsal cranial platform trapezoid in shape. On *E. tienshanensis* the squamosal is extremely enlarged and morphologically distinct. It expands anteriorly to encompass the postorbital laterally and effectively constitutes the entire lateral margin of the dorsal cranial platform. Its posterior end also expands extremely laterally and elongates posteriorly as a narrow ventrally rotated surface causing the posterior cranium to become greatly expanded and thus construct a deep auditory canal. The squamosal's lateral sides are conspicuously thickened with dorsal and ventral margins that project laterally and its medial portion composes a longitudinally directed groove for contact with the external acoustic shield.

Although the left postorbital is incomplete, the preserved portion is sufficient to determine its basic characters. Firstly, it lies in opposition to the extremely expanded squamosal although it is greatly reduced in size due to being displaced laterally on the dorsal cranial platform by the latter, and therefore constitutes only a small portion of the lateral angle between the supratemporal fenestra and the orbit. Dorsally it maintains delicate ornamentation and there is an anterolateral branch that extends ventrally to distinctly exhibit a recessed postorbital bar.

The high degree of cranial pneumatization is a major character of the Crocodylia and occurs in the vast majority of *Edentosuchus* cranial elements to compose a system of eustachian tubes and choanae. Crompton and Smith (1980) described the North American Early Jurassic *Eopneumatosuchus* that maintains an extremely well developed eustachian complex composed of a fine lattice-work of buttresses and webbing within its basisphenoid, opisthotic, and elements that enclose the middle ear cavity. On the Xinjiang specimen, elements of the oral region, basioccipital and a large portion of the basisphenoid are not preserved, prohibiting a description of the nares and eustachian complex. But the high degree of pneumatization in the elements surrounding the otic region resembles *Eopneumatosuchus* and appears to be more complex than in extant crocodiles.

In general, the quadrate in the Crocodylia is a robust element that strongly extends posterolaterally from the braincase. Its dorsal surface is perforated by several foramina from the lateral wall of the middle ear cavity and which also become confluent with the articular foramina in the middle ear cavity. The entire the ventral quadrate facilitates adductor musculature of the mandible. The ventral skull of the *Edentosuchus* (Fig. 1B) retains only an extremely small portion of the anteromedial quadrate which is preserved on both sides of the skull. Its mandibular condyle and principle body are missing, but preserved are extremely small osteological columns that contact the lattice-work of the inner cranium and amply illustrate the numerous pneumatocoels on the medial side. Medially the quadrate contacts the laterosphenoid and prootic which is plesiomorphic for crocodylians. On a vast majority of reptiles the head of the quadrate is in contact with the squamosal and the opisthotic (paroccipital process) posterior to the fenestra ovalis, but in the Crocodylia this contact has migrated anteriorly to the lateral side of the prootic and the laterosphenoid.

In the extant *Alligator sinensis* the laterosphenoid consists of a pair of small quadrilateral plates which form an oblique crest for the medial suture line and runs from the posteroventral angle to the anterodorsal angle with a height that exceeds their breadth. On *Edentosuchus* the laterosphenoid is incomplete but its remnants suggest that it was rather greatly extended anteroposteriorly, with an anteroposterior length that exceeds its breadth. The surface that is preserved is crescentic and there is no indication of a well developed oblique crest. A plicated suture line represents its anterodorsal contact with the frontal while the posterodorsal margin is a flat and smooth contact with the parietal. The lateral side between these suture contacts is not preserved although on extant Crocodylia it is located at the top of the oblique ridge as a condylar or capitular process that articulates with the ventral sulcus of the postorbital. The laterosphenoid comprises the ventrolateral wall of the supratemporal fenestra, although it appears very possible that this element has undergone post depositional compressional distortion, causing the suture line with the quadrate to become exposed, appear asymmetrical with a rather elevated right side, and resulting in its exposure from dorsal perspective. The posterior margin of the left laterosphenoid is in contact with the prootic where there is a large dorsal rhomboid-shaped notch between the two elements that represents the foramen for the trigeminal nerve (V). The shallow posterior margin of the laterosphenoid, which would be in contact with the quadrate, is not preserved. There is a pair of small foramina at the anterior end of these two elements on the medial wall of the supratemporal fenestra that is presumed to represent the exit for the trochlear nerve (IV). On extant Crocodylia this exit is located on the anteroventral supratemporal fenestra where there is merely a narrow bony septum separating it from the foramen for the trigeminal. On *Edentosuchus* this small foramen is positioned relatively dorsally and migrated greatly anteriorly, placing it distantly from the trigeminal foramen due to the anteroposterior extension of the laterosphenoid. Also, the foramina for the optic (II) and oculomotor (III) nerves are indistinct due to the notched morphology of the ventral margin of the laterosphenoid. On the left laterosphenoid, in the region of its contact with the anterior quadrate, the surficial bone has been corroded exposing the interior sinus such that in the same manner as the quadrate, it too displays a composition of large pneumatocoels interlaced with several gracile buttresses.

The left prootic is relatively well preserved and fully exposed ventrally due to a large portion of the quadrate being damaged. The morphology of this element, which lies on the lateral side of the braincase, is exceptionally complex. Its anterior end is in contact with the laterosphenoid while medioventrally it is in contact with the basisphenoid. An enigmatic feature of this element is the presence of small radiating branches that extend from its lateral side to contact the quadrate and between which are small bony latices. This phenomenon is unknown on extant crocodylians, not described on any other fossil crocodiles, and as such its function is currently inexplicable. The posterior prootic is in contact with the supraoccipital and the otic region of the posterior exoccipital to construct a conical, trilaminar enclosed housing that encompasses the middle and inner ear cavities. Only an extremely small portion of the supraoccipital is preserved which constitutes the dorsomedial portion of the internal auditory meatus. The exoccipital constitutes the posterior wall of the middle and inner ear cavities and displays distinct suture lines with the supraoccipital and prootic in addition to a third distinct suture that appears to represent a primitive vestigial boundary between the opisthotic and exoccipital. The prootic occupies an extremely significant position on the lateral wall of the braincase, for on the left side there are two oval foramina visible at the anteriorly rotated vicinity of the otic region, the posterior of which is determined to be the foramen for the acoustic nerve (VIII) while the anterior is recognized as the foramen for the facial nerve (VII). The right otic region of the skull is constructed from the opisthotic region of the exoccipital which has suffered damage and loss of critical features although the inner ear region is distinctly exposed. The ventral portion of the supraoccipital and the posterior portion of the prootic compose a small concave surface and unite to surround the deep circular depression representing the inner ear cavity, the lateral side of which displays a crescentic depression on the margin of the prootic, and together with a depression on its counterpart the opisthotic, surround the fenestra ovalis. Whether or not there is contact with the neighboring fenestra pseudorotunda cannot be determined due to the damage on the opisthotic.

A conspicuously deep groove is present at the contact of the ventral squamosal with the terminus of the exoccipital that is recognized as facilitating contact for the acoustic membrane as its location is appropriately opposed to the quadrate.

The main body of the basisphenoid is missing as there is only a small portion of it preserved between the laterosphenoid and prootic, composing the basal platform of the braincase. The majority of the supraoccipital and the exoccipital are also not preserved and as such morphology of the occipital region is unknown.

The type preserves the anterior portion of its mandible and the posterior termini of the dentaries (Figs. 1C and D). Its morphology follows precisely the description conducted by the original author: at its anterior end it is very slightly expanded, posteriorly becomes rather constricted, and at the posterior end of the tooth row the mandibles suddenly expand laterally crating an X-configuration in posterior perspective. This condition conforms precisely with the posterior expansion of the cranium and indicates the rostral region of the skull is short and narrow. The symphyseal region of the mandible is elongated, extending to the second posterior most tooth.

The dentition is thecodont and at the most anterior right side has suffered extensive damage. On the left side there is only a single small incisiform tooth missing its apex that is erupted obliquely laterally, and from what is preserved, it appears to have been conical. Posterior to this tooth is a robust and large caniniform tooth with longitudinal striations radiating from the apex. Each mandible bears seven postcaniniform teeth erupted in compact alignment and although interdental vacuities are small the bone from sides of the dentition does not completely enclose the teeth. These seven teeth appear to erupt from within the same dental trough which is anteriorly narrow and posteriorly broadened with the dentition within it gradually increasing in size anteroposteriorly. On the right side, this dentition is completely preserved with slightly inflated crowns at the apex and then ventrally become rather slenderly columnar, and finally expand again to compose a circular base. The apex of the teeth have planar wear facets, height of crowns are basically consistent, and are presumed to be constructed for functional mastication. On the right side the six anterior teeth are barely higher than the dental trough as the columnar crowns have been completely broken and only the bases remain with a small circular pulp cavity preserved in cross-section. This damage may be due to taphonomic processes.

A majority of the splenial is missing with only an extremely small claviform remnant of it fused to the mediodorsal margin of the left dentary and mediodorsal and medioventral margins of the right dentary. The suture line between these two elements is distinct and indicates two conspicuous characters, the first being that the anterior end of the splenial might contact the most posteromedial portion of the dentary but does not penetrate the symphysis; the second character is that the anterior end of the splenial diverges into two branches that extend along the dorsomedial and ventromedial dentary such that its midsection does not overlap the dentary and allows exposure of the Meckelian canal.

Only an incomplete piece of the articular is preserved with the angular and surangular. The articular only preserves a portion of its retroarticular process as the glenoid region is missing. The retroarticular process is short and robust with a smooth, triangular dorsal surface, and a terminus that is slightly medially rotated. Because a large portion of the surangular is missing on the lateral side, it is possible to observe the medial portion of the articular which resembles the cranial region in being greatly pneumaticised with several slender and small columnar buttresses within it. Another autapomorphic character of the mandible lies in the morphology of the angular, for in the general condition of the Crocodylia, the angular frequently is appressed to the lateral side of the articular with its ventral margin as a crescentic arc that extends to the end of the mandible. On *Edentosuchus* the angular is a laterally convex, medially concave wall that underlies the ventrolateral margin of the articular with a posterior margin that does not reach the most posterior

end of the articular, and composes an angle exceeding 90° with the ventral margin. The lateral surface of the angular is delicately ornamented.

Table 1. Cranial measurements of *Edentosuchus tienshanensis* (mm)

Supratemporal fenestra length	11
Anterior width of cranial platform	24
Posterior width of cranial platform	38
Minimum interorbital breadth	7
Minimum intertemporal breadth	9
Symphyseal length	14.5
Dentition length	18

The length from the anterior margin of the orbit to the posterior skull is 37 mm and mandibular dentition length is 18 mm. When compared to several species of South American Notosuchidae, which also maintain a reduced heterodont dentition, there should be an additional extension of the skull between the anterior margin of the orbit and the posterior tooth in the mandible, and in this manner the total length of the skull should attain 50-60 mm, representing an extremely small crocodile. Based upon the abrupt posterolateral expansion of the mandible, the extreme expansion of the squamosal in the posterior cranial platform, and the reduction of the postorbitals more anteriorly, it may also be determined that there is a corresponding abrupt anterior constriction of the skull (Fig. 2)

For a description of the paratype mandible V3236 (2) refer to the original text of Young (1973).

There is a completely preserved string of vertebrae (Fig. 1E), the anterior seven of which represent cervicals 3-9 and the posterior which represent dorsals 1-3. The atlas and axis are not preserved. The seven cervical vertebral morphologies are basically consistent with short platycoelous centra that bear well developed ventral keels and are slightly laterally concave. Neural spines are not well preserved but from the preservational condition of Cv5 to Cv8 it may be determined that they were not excessively high. Diapophyses are robust and descend strongly obliquely from the neural arch while anteroposterior obliquity gradually weakens posteriorly along the column. Parapophyses are present on the anterior margin of the vertebrae. Cv4-Cv6 still preserve portions of cervical ribs. The three dorsals display a gradual increase in size, are platycoelous, laterally constricted, diapophyses are basically horizontal, and parapophyses gradually elevate posteriorly such that by D3 they are nearly at the same level as the diapophyses.

Discussion: *Edentosuchus tienshanensis* was initially assigned to the suborder Protosuchia, although at that time the misassignment was principally based upon the presence of palatal teeth, which in actuality are not present on the specimen as the palatal complex is absent. Although several characters are shared with protosuchids, other characters suggest an assignment to the Mesosuchia, including the platycoelous vertebrae, the fusion of the frontals and parietals, and the recessed postorbital bar.

Families in the Mesosuchia which are quite far removed from *Edentosuchus* include the longistrine Pholidosauridae and Goniopholidae, the brevirostrine and robust Paralligatoridae, and

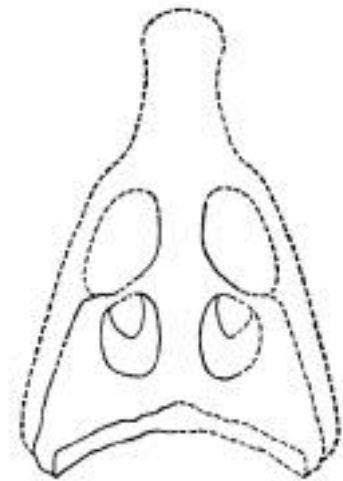


Figure 2. Dorsal view of *Edentosuchus tienshanensis* cranial reconstruction.

the marine dwelling Teleosauridae. Families approaching *Edentosuchus* include the Atoposauridae and Notosuchidae, the former of which is known from Late Jurassic northern hemisphere localities in North America, Europe, and the single occurrence in China of *Shantungosuchus chuhsienensis* Young, 1961. The Notosuchidae are recorded from the Late Cretaceous of South America. In actuality these two families share a number of cranial characters with *Edentosuchus* including short rostra, large orbits, small temporal fenestrae, and the recessed postorbital bar. Atoposaurid taxa are all small, with skull lengths of 3.5-8.0 cm, and a maximum body length recorded at 79 cm. Notosuchid taxa are small to moderate in size, among which are *Notosuchus* with a skull length of 18 cm and *Uruguaysuchus* with a body length of up to 120 cm. The skull of *Edentosuchus* is estimated at five to six cm which approaches the size of the Atoposauridae. Additional morphological characters approach the Notosuchidae, such as the posterolateral expansion of the squamosal, but this character is also shared with the protosuchid *Orthosuchus*, although on *Edentosuchus* and *Uruguasuchus* the squamosals are extremely projected which, in effect causes the posterior cranial platform to become greatly expanded forcing the extension of the external auditory meatus and medial auditory region. Furthermore, the vast majority of Crocodylia maintain a primitive isodont dentition, the majority of the teeth which are conical, very slightly laterally compressed, medially curved, and bear anterior and posterior carinae. Several genera of Notosuchidae maintain heterodont dental morphology that are reduced in count and consist of three to four incisiform teeth, a large caniniform tooth, 7-11 maxillary teeth, and 10-16 dentary teeth (Steel, 1973). This is the most notable character on *Edentosuchus* as with incisiform teeth being reduced to one, postcaniniform dentary teeth to seven, and the caniniform tooth being extremely large and robust. Variation in dental morphology is extremely conspicuous with a simplified single conical incisiform tooth, and postcaniniform teeth which consist of large crowns and constricted columnar bases. A comparison of vertebrae indicates that both *Edentosuchus* and the Atoposauridae have platycoelous centra but several genera of notosuchids are described as bearing gently amphicoelous centra.

Therefore, *Edentosuchus* shares characters with the Atoposauridae in its size and biogeography, but in other characters is more consistent with the Notosuchidae, in its dorsal cranial morphology, heterodont dentition, and reduced dental count. *Edentosuchus* is produced from the variegated beds of the Tugulu Group in Xinjiang which also produce the pterosaur *Dsungaripterus* and dromeosaur *Phaedrolosaurus* providing an Early Cretaceous age for the fauna (Dong, 1973) although Gu (1964) interpreted a Late Jurassic age for the sediments based upon fresh water pelecypods. Compared to the Late Jurassic atoposaur *Shantungosuchus*, *E. tienshanensis* is quite distinct in its cranial and dental morphology, dental count, and cervical count. *Shantungosuchus* much more closely approaches the Late Triassic pseudosuchian *Sphenosuchus* (Young, 1961) in its retention of primitive characters while *Edentosuchus* is more inclined toward the derived later Cretaceous Notosuchidae, and as such an Early Cretaceous age is more appropriate for the Tugulu Group. Romer (1966) believed the genus *Notosuchus* and other South American genera were perhaps derived from the Atoposauridae, and although the age of *Edentosuchus* lies between those of the two families, it is impossible that it represents an intermediate stage between the two families due to the specialization of its dentition. Its cranial morphology shares several characters with the protosuchidae strongly suggesting an ancestral-descendent relationship and thus *Edentosuchus* may represent an independent lineage of the former. Therefore, currently, it is most appropriate to retain the family Edentosuchidae erected by Young and await the discovery of further data for more supplementary revisions.

Ontogeny and ecological conditions: The type skull of *Edentosuchus tienshanensis* is extremely small, being merely five to six centimeters in length. Several characters suggest that this specimen may be a juvenile, such as the conspicuous suture lines and the dentition being not quite fully thecodont but lying in a trough. However, other characters support a contradictory conclusion. Joffe (1967) established six criteria for the differentiation of adult from juvenile crocodiles based upon observations of extant and fossil specimens. Among these criteria is the variation of the supratemporal fenestra in both morphology and size during ontogeny. In embryos

the fenestra is a small crevice which gradually elongates and broadens during growth and upon maturity generally becomes circular. The temporal fenestra on *E. tienshanensis* is genuinely broad, spacious, and nearly circular, indicating that it has reached maturity. Furthermore, there is ornamentation on the cranial platform and the mandible is relatively robust with wear facets upon the dentition (as opposed to paratype V3236 (2)). The subthecodont condition of the dentition on the type is an enigmatic phenomenon. The length of the paratype dentary is two-thirds that of the type and it is even more gracile and weak indicating that it is undoubtedly a juvenile. As its anterior three postcanine teeth are fully thecodont, it appears to indirectly confirm that the type was subjected to secondary loss of interdental bone, or the fully thecodont condition. If this hypothesis is accurate, then this character, at minimum, cannot be used as evidence that the type is a juvenile. Therefore, from a synthetic perspective the type specimen appears to be a newly mature individual with its cranial platform already formed, the corresponding postorbital region indicates the oral region is extremely short and small, and the cranial suture lines are still distinct.

The dentition on *Edentosuchus* is rather characteristic. The dental condition of the Crocodylia in general is that of conical teeth that are very slightly laterally compressed, medially curved, and bear anterior and posterior carina. In addition, the dentition is always sharply conical due to continuous replacement and thus is a distinct indication of a carnivorous diet. The rounded and columnar postcanine crowns on *Edentosuchus* that display flat wear facets does not resemble a facility for strong predation as on other members of the order such as the extant *Crocodylus porosus*, nor does it resemble the longirostrine acute picivorous dentition of genera such as *Gavialis*. From the perspective of dental morphology and alignment, it resembles several herbivorous reptiles. On the juvenile paratype the fourth through sixth postcanine crowns are preserved with unworn simply rounded occlusal surfaces. The flattened occlusal surfaces on the type are due to occlusal wear but the occlusal relationship between the maxilla and mandible is unknown and it is currently difficult to determine their functional relationship as the maxillary dentition is not preserved. On the specimens at hand there is no evidence for dental replacement although in the Reptilia in general dental replacement is inevitable. But there is no evidence to determine what formula this taxon would employ. The standard formula is that teeth erupt beneath the functional dentition to gradually become enlarged while concurrent resorption of the functional tooth root causes shedding of the crown. It is possible that replacement on *Edentosuchus* could occur laterally, or perhaps as eruption posteriorly with dentition migrating anteriorly where the teeth would be shed. Its dental morphology, however, indicates a dental replacement unlike all other crocodyles.

Edentosuchus probably inhabited aquatic or terrestrial environments as extant do Crocodylia. And because it is such a small individual it was unable to compete with the contemporaneous Mesozoic fauna and probably used the aquatic systems for predator evasion and acquisition of food. It probably subsisted on a varied diet.

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