

SILICON POLYMER FOR CAST OF PARANASAL SINUSES OF IRAQI LOCAL GOAT (*Capra hircus*)

Dhuha Adel Kareem , Alaa A.Sawad

Department of Anatomy and Histology, College of Veterinary Medicine, University of Basrah,Basrah, Iraq

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ABSTRACT

The present work is designed to study the anatomical features of the paranasal sinus in local goat(*Capra hircus*) to distinguish and describe the types of the paranasal sinuses. Five heads of local goat were collected are used in this study , Used of silicone casts and imaging in order to study the shape, position of sinuses . The study revealed that the paranasal sinuses are ventilated spaces connected to the nasal cavity. They develop as blind ending pouches between the lamina of the bones of the skull or are a series of cavities arranged one after another like pyramidal shapes consists of five sinuses. which cavities are frontal , maxillary, lacrimal, palatine, conchal sinuses with absence of sphenoid sinus . The frontal sinus lies above the eyes (above the orbits) and have two types larger lateral and smaller medial, Maxillary sinus is large and located under the cheeks, while the lacrimal sinus is very small located in the dorsal part of the lacrimal bone . The palatine sinus is located in the hard palate. There are three conchal sinuses located inside three conchae of nasal cavity. The dorsal, ventral ,middle conchal sinuses located inside dorsal ,ventral ,middle nasal concha respectively , the dorsal conchal sinus longer than ventral and middle conchal sinuses. The aim of study to identify the morphological features of the paranasal sinuses and relation between them and with other regions. in the Iraqi local goat because veterinary importance and its effect on public health.

INTRODUCTION

Goats are a popular large animal model because they can be easily obtained and bred. Over the past decades, they have been used to study immunoserology, microbiology, biological products, gene transfer and tissue-engineering repair of

bony defects and for teaching and biomedical research and for surgical training.(1, 2).

The paranasal sinuses of goat are a series of cavities arranged one after another. These cavities are frontal , maxillary, lacrimal, palatine, conchal sinuses. The Frontal sinus, Consists of spaces within the bones between the cranial cavity and the nasal cavity divided into two parts, smaller medially and larger laterally ,while the Maxillary sinus, are the largest sinus is divided by the infraorbital canal into medial and lateral parts. The lateral partion is larger and extends caudally into the lacrimal bulla; while the medial portion located medial to the infraorbital canal , is continuous with the palatine sinus ;Lacrimal sinus are relatively small and lies near the frontolacrimal junction, The Palatine sinus Communicate with the maxillary sinus through a wide maxillopalatine opening and three conchal sinuses (dorsal, middle, ventral) formed by concha of nasal cavity (3,5).

This sinuses are cavities lies in the interior at some bones of the skull .the walls of the sinuses are composed of compact bone and are lined by a muco- periosteum (muco-endosteum) which is continuous with the nasal cavity(3,8).

Anatomical features of the paranasal sinuses and relation between them and with other regions in the Iraqi local goat were aimed in this study.

MATERIALS AND METHODS

To study the anatomical structure of paranasal sinuses used five heads of local goat (*Capra hircus*) . the head were splited into two equal half by bone saw and clean the sinuses from all debris and washing by water and then injected by using sillicon polymer(polysiloxanes) after that leave the head in room temperature for 24 hr. Then removed the skin and muscle by surgical set and opens the skull by bone cutter to obtain the sillicon cast of sinuses after that varnished the sinuses by nails dyes and photograph by digital camera samsung model EK8C.(19).

RESULTS AND DISCUSSION

The present study revealed that the paranasal sinuses in goats are a series of cavities arranged one after another connected to the nasal cavity like pyramidal shapes consist of five sinuses fall into two groups)(Fig.1,2,3):

The first group includes maxillary sinus and palatine sinus (Fig.2,3) .The second group comprises independent sinuses which open separately into the nasal cavity. This group includes dorsal, middle and ventral nasal sinuses (Fig.1,3) .It also includes medial and lateral frontal sinuses which open separately into the ethmoidal sinuses (Fig.1,3).

The lacrimal sinuses may be a part of the lateral frontal sinuses (Fig.2,3). Sphenoid sinuses are not present in goat this agreement with (3,4) who reported that the paranasal sinuses in goat consist of frontal sinus, maxillary sinus, palatine sinus, lacrimal sinus, ventral conchal sinus ,dorsal conchal sinus, middle conchal sinus while this results disagreement with(7,8,9). who find that the donkey head had six pairs of sinuses, three paranasal; the frontal, maxillary and sphenopalatine sinuses and three nasal conchal sinuses ; dorsal, middle and ventral conchal sinuses and an agreement with (10) who said the paranasal sinuses of buffalo comprised the dorsal conchal, middle conchal, maxillary, frontal, palatine, sphenoidal, lacrimal and ethmoidal. The goats have paranasal sinuses reasonably similar to humans in morphological anatomy (the most sinuses like pyramidal shape this results of this study are agreement with (4,11).

The frontal sinuses:

are funnel to pyramidal shaped cavities. There are two compartments of the frontal sinus. The lateral sinus ,being larger and caudally. The medial frontal sinus is very small and rostral .The previous results agree with (4,12)(Fig.1,3).

The maxillary sinus:

These paired sinuses that pneumatizes the entire maxilla lie under the cheek. like pyramidal shaped and this result in coincide with (13))(Fig.2,3).

The palatine sinus:

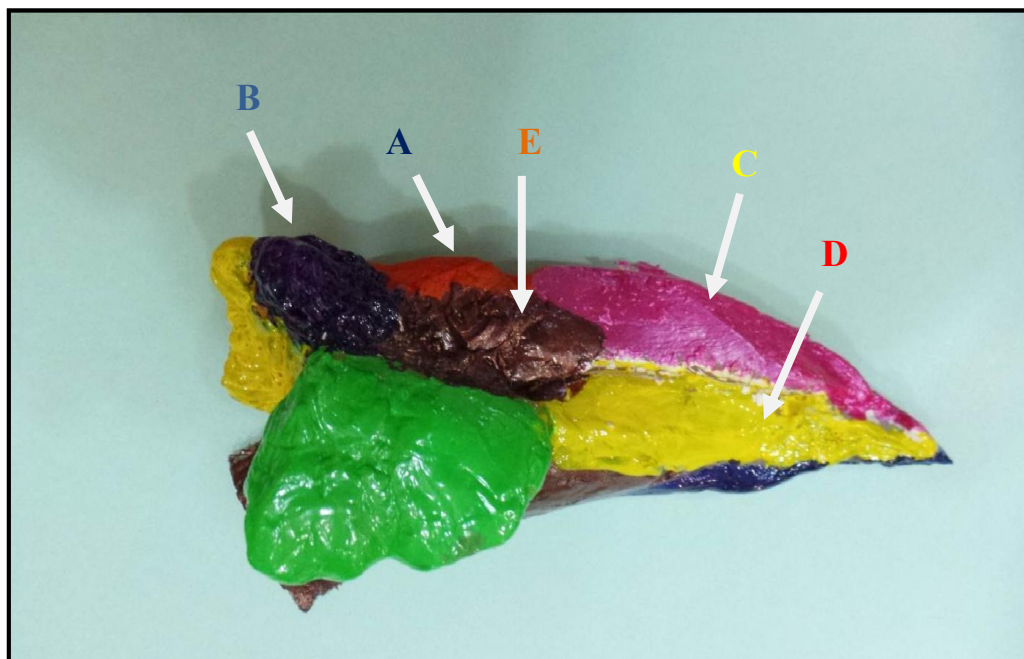
The Palatine sinus is excavated in the hard palate. It like pyramidal shape agree with(10,14,15) and disagreement with(7,16,17) who show in the donkey ,the fusion of sphenopalatine sinuses(Fig.2,3)

The lacrimal sinuses:

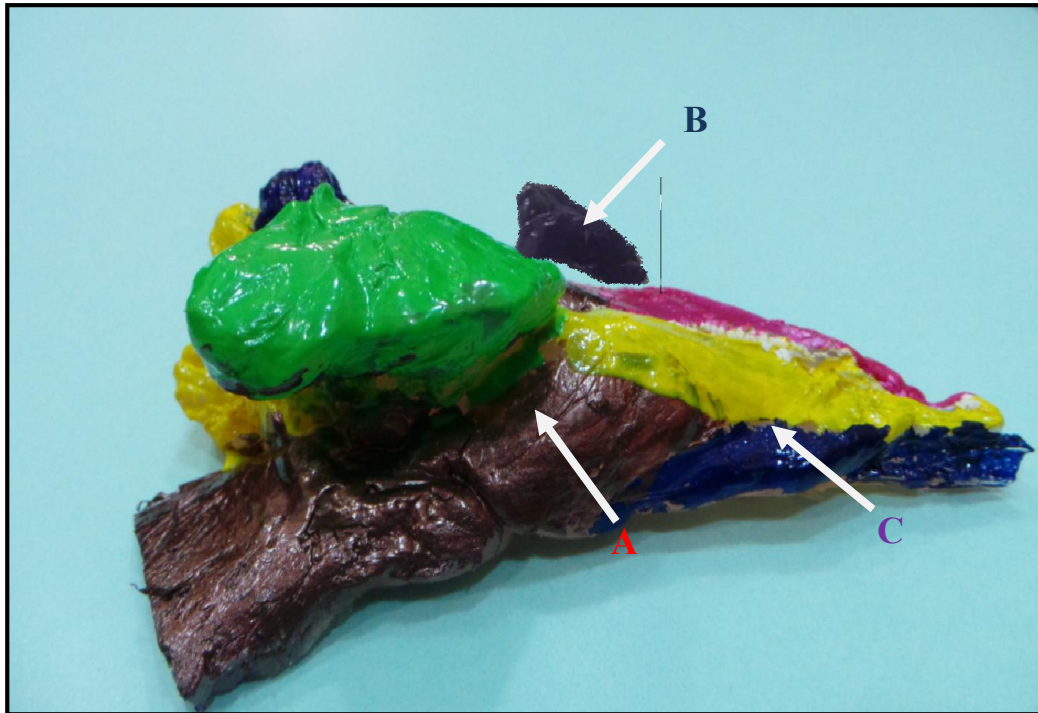
The lacrimal sinus is excavated in the dorsal part of the lacrimal bone, which is relatively small and appear like oval to pyramidal shape and this results agree with (3,10,15) (Fig.2,3)).

The conchal sinuses:

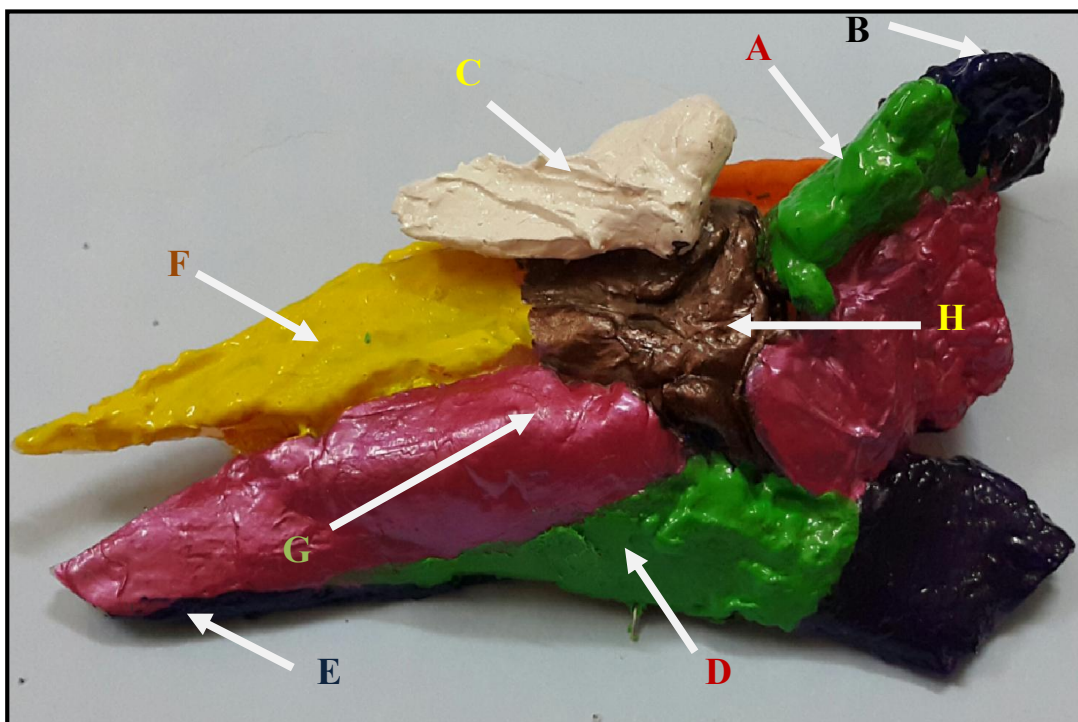
The greater part of the space in each half of the nasal cavity is occupied by the nasal conchae(turbinate bones) which project medially from the lateral walls into the cavity. Found inside conchae three type sinuses like pyramidal shape (this sinuses dorsal conchal sinus, ventral conchal sinuses, middle conchal sinus and this result coincide with (14,15)and disagree with(10)The ventral conchal sinus was absent in buffalo. also disagree with(18) who reported absent the ventral conchal sinuses in camel)(Fig.1,3).



Figure(1) : shows(dorsal view) the frontal sinuses (A)Medial frontal sinus(B) Lateral frontal sinus (C) Dorsal conchal sinus(D)ventral conchal sinus(E)Middle conchal sinus.



Figure(2) : shows the(dorsal view) (A) Maxillary sinus (B) Lacrimal sinus (C) palatine sinus.



Figure(3) : shows (dorsal view) (A))Medial frontal sinus(B) Lateral frontal sinus(C)Lacrimal sinus (D) Maxillary sinus (F) Dorsal conchal sinus (G) ventral conchal sinus (H) Middle conchal sinus (E) palatine sinus.

استخدام بوليمر السليكون لدراسة الجيوب الجنب الأنفية في الماعز العراقي المحلي

ضحى عادل كريم علاء عبد الخالق حسين

فرع التشريح والأنسجة ، كلية الطب البيطري، جامعة البصرة، العراق

الخلاصة

استهدفت هذه الدراسة لإيضاح الخصائص الشكلية للجيوب الجنب الانفية في الماعز المحلي وتمييز ووصف انواع الجيوب الجنب الانفية . استخدمت لهذه الدراسة (5) رأس من الماعز المحلي ، درس شكل وموقع الجيوب في حيوان البحث من خلال اخذ صور قوالب سيليكون وأثبتت الدراسة أن الجيوب الجنب الانفية هي عبارة عن تجاويف هوائية متصلة بتجويف الأنف كأنها اكياس ذات نهايات عمياء متطورة بين صفائح في عظام الجمجمة أو هي سلسلة من تجاويف مرتبة واحدة تلو الأخرى ذات اشكال هرمية مكونة من خمسة جيوب (جبهى ، و فكي ، ودمعي ، وحنكي، والجيوب المحارية الثلاثة) مع انعدام الجيب الوتدي . الجيب الجبهى نوعان كبير وحشي وصغير انسي اما الجيب الفكي فهو كبير ويقع تحت الخدود(الفك) ام الدمعي فهو صغير جدا يقع في الجزء الظهري للعظم الدمعي اما الجيب الحنكي يقع في الحنك الصلب بينما الجيوب المحارية الثلاثة تقع كل واحدة داخل المحارات الانفية الثلاثة للتجويف الانفي حيث ان الجيب المحاري الظهري اطول من الجيب البطني والجيب الوسطي. وأن الهدف من هذه الدراسة هو التعرف على شكل وموقع الجيوب الجنب الانفية وتوزيعها وارتباطاتها وعلاقتها مع بعضها البعض وذلك لأهميتها البيطرية وتأثيرها على الصحة العامة.

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