

قسم : علم الحيوان .
كلية : العلوم - جامعة أسيوط .
رئيس القسم : أ.د. / محمد حسين .

دراسات على العضلات خلف الجمجمة
لثعبان ابو السيور : بساموفيس سييلانس ، رتبة : أوفيديا - عائلة : كولبريدي

٢- العضلات المحصورة بين حاجزى النسيج الضام الثاني والثالث

عبد الحميد خليل ، محمد وهبة ، ماجده الشابورى

في هذا البحث تمت دراسة واستعراض العضلات المتواجده بين حاجزى النسيج الضام الثاني والثالث وهي :

- ١- العضلة الضلعية الآدمية (١٦) .
- ٢- العضلة الرابطة بين الفقارية الداخلية ورقمها (٢) في الثعابين وغير ممثلة في السحالي .
- ٣- العضلة الرابطة بين الفقارية الخارجية ورقمها (٣) في الثعابين وغير ممثلة في السحالي .

Dept. of Zoology,
Faculty of Science, Assiut University,
Head of Dept. Prof. Dr. M. Hussein.

**STUDIES ON THE POST-CRANIAL MYOLOGY OF PSAMMOPHIS
SIBILANS (LINNAEUS), ORDER:OPHIDIA, FAMILY:COLUBRIDAE
II- MUSCLES ENCLOSED BETWEEN RADIAL CONNECTIVE
TISSUE SEPTA (2) & (3)
(With 12 Figs.)**

By
A. KHALIL; M.T. WAHBA and M.R. EL-SHABOURY
(Received at 24/7/1986)

SUMMARY

This second paper of the series dealing with the post-cranial myology of *Psammophis sibilans* is concerned with the group of muscles enclosed between radial connective tissue septa (2) & (3) mentioned in the first paper of this series. Those muscles are: the dermo-costal (16), median intervertebro-articular (op 2) and lateral intervertebro-articular (op 3).

INTRODUCTION

In the first of the present series of papers it was mentioned that each paper generally deals with a small group of muscles located between two successive radial connective tissue septa. It was thought that that approach could simplify the subject for the reader. The first paper dealt with four muscles while the present paper deals with three muscles.

RESULTS and DISCUSSION

The Dermo-costal muscle (Muscle numbered 16 in lizards and snakes) (Figs. 1,2c,d,e, & f, 3,4,6,7, 10 & 11).

In the case of lizards, the units of that muscle originate on the proximal regions of the vertebral portions of the ribs, but in the case of the snake examined those thick units (Figs. 7 & 10) originate on a ligament running between the prezygapophyses of the whole vertebral column. The origin of each unit extends along the whole length of a vertebra as well as small anterior region of the vertebra next behind. The muscular part of each unit extends antero-dorsally to cover about four vertebrae before it gives distally a broad and thin insertion tendon. That tendon bifurks distally. Its median branch is inserted on the second vertical connective tissue septum (S.C.2), while its lateral branch is inserted on the third vertical connective tissue septum (C.S.3). The median point of insertion of the dermo-costal on the second vertical connective tissue septum (C.S.2) is dead opposite to the origin of a lateral branch of the outer semispinal (15), while the lateral point of insertion of the dermo-costal on the third vertical connective tissue septum (C.S.3) is dead opposite to the origin of a unit of the ilio-costal.

Again, the units of the dermo-costal are distributed all over the whole length of the vertebral column (Figs. 3 & 4). The first unit of the dermocostal originates on the fifth body vertebra,

while in the case of the anterior four body vertebrae (Fig. 6), muscle fibres arising from those vertebrae collect together to get anteriorly inserted on the dorsal surface of the supraoccipital. However, in the case of the thirteenth to fifteenth body vertebrae, the muscle units are distally branched and directly inserted on the vertical connective tissue septa (C.S.2 & C.S.3).

The Median intervertebro-articular muscle (OP.2) (Figs. 2c,d,e & f, 3,4,8,9 & 12).

The units of that muscle start on the fourteenth body vertebra up to the end of the caudal region (Figs. 3 & 4). Each unit (Fig. 9) originates by a fine tendon on the postzygapophysis of one vertebra then after a short posterior extension of the muscular tissue it becomes biforked to give a broad lateral branch which is inserted on the third vertical connective tissue septum (C.S.3) opposite to the whole length of the vertebra next behind, and a slim median branch which becomes inserted by a fine long ligament on the postzygapophysis of the third vertebra behind. This muscle is named "interarticulaire superieur" by GASC, 1967.

The Lateral intervertebro-articular muscle (OP.3) (Figs. 2c,d,e & f, 3,4,8,10 & 12).

The units of that muscle are distributed along the whole length of the vertebral column (Figs. 3 & 4). Each unit (Fig. 10), collects muscle fibres from four successive prezygapophyses and those fibres are inserted together by a fine short tendon on the prezygapophysis next in front. Hence, each unit covers four successive vertebrae. The insertion of the first unit is on the third cervical vertebra. This muscle is named "interarticulaire inférieur" by GASC, 1967.

REFERENCES

- Gasc, J.P. (1967): Introduction a l'étude de la musculature axiale des Squamates Serpentinales.
Mem. Mus. Nat. Hist. Paris 48: 69-125.
- Kamal, A.M. and Hammouda, H.G. (1967): The cranial osteology of adult Psammophis sibilans.
Bull. Fac. Sci. Cairo Univ., 14: 119-149.

EXPLANATION OF LETTERING

ANT. = anterior; AT. = atlas; AX. = axis; CEN. = centrum; C.S.(1-6) = first to sixth connective tissue septa; C.V.(3-8) = third to eighth cervical vertebrae; D.R. = dorsal rib.; D.V. dorsal vertebra; D.V.2 = second dorsal vertebra; E.O.C. = exoccipital; FR. = frontal; HYP. = hypapophysis; L.16 = ligament of origin of muscle numbered sixteen; MAS.1 = masticatory one; N.A. = neural arch; N.S. = neural spine; OD.P. = odontoid process; OC.CO. = occipital condyle; OP.1-OP.8 = first to eighth ophidian muscles; PR. = parietal; PR.Z. prezygapophysis; PT. = pterygoid; PT.Z. = postzygapophysis; QU. = quadrate; S.O.C. = supraccipital; S.T.M. = supratemporal; T.15 = tendon of insertion of muscle numbered fifteen; T.16 = tendon of insertion of muscle numbered sixteen; T.17 = tendon of insertion of muscle numbered seventeen; T.P. = transverse process; TU. = tubera.

II. MUSCLES ENCLOSED BETWEEN RADIAL CONNECTIVE TISSUE SEPTA (2) & (3)

EXPLANATION OF FIGURES

- Fig. (1):** Dorsal view of the skull (after Kamal and Hammouda 1967) showing the attachments of muscles numbered (Mas. 1,1,2,8 & 16).
- Fig. (2):**
- A.** Lateral view of the atlas showing the attachments of muscles numbered (1,9,10 & 13).
 - B.** Lateral view of the axis showing the attachments of muscles numbered (1,2,9,13 & 15).
 - C.** Dorsal view of a trunk vertebra showing the attachments of muscles numbered (2,16,OP.1, OP.2, OP.3 & OP.4).
 - D.** Lateral view of a trunk vertebra showing the attachments of muscles numbered (2,13,15,16, OP.1, OP.2, OP.3, OP.4 & OP.7).
 - E.** Dorsal view of a caudal vertebra showing the attachments of muscles numbered (2,16,17, OP.1, OP.2, OP.3 & OP.4).
 - F.** Lateral view of a caudal vertebra showing the attachments of muscles numbered (2,15,16,17, OP.1, OP.2, OP.3, OP.4 & OP.7).
- Fig. (3):** Dorsal view of some trunk vertebrae showing muscles numbered (2,15,16,17,18 OP.1, OP.2, OP.3, OP.4 & OP.5).
- Fig. (4):** Dorsal view of some caudal vertebrae showing muscles numbered (2,15,16,17,18, OP.1, OP.2, OP.3 & OP.4).
- Fig. (5):** Lateral view of the anterior part of the vertebral column showing muscle numbered (2).
- Fig. (6):** Ventro-lateral view of the neck and the anterior part of the trunk region showing the topology of muscles numbered (1,10,13a,16,17 & 18).
- Fig. (7):** Lateral view of some trunk vertebrae showing two units of muscle numbered (16).
- Fig. (8):** Lateral view of some trunk vertebrae showing muscles numbered (2,16,17, OP.2, OP.3, OP.4, OP.5 & OP.8).
- Fig. (9):** Dorsal view of some trunk vertebrae showing muscles numbered (2, OP.1 & OP.2).
- Fig. (10):** Dorsal view of some trunk vertebrae showing muscles numbered (16, OP.1, OP.3 & OP.4).
- Fig. (11):** Dorso-lateral view of some trunk vertebrae showing muscles numbered (15,16,17,18 & OP.5), and the relation between muscles numbered (15,16 & 17) via the vertical connective tissue septa (C.S.2 & C.S.3).
- Fig. (12):** Dorso-lateral view of the trunk musculature showing muscles numbered (2,15,16,17,18, 24, OP.1, OP.2, OP.3, OP.4, OP.5 & OP.8).

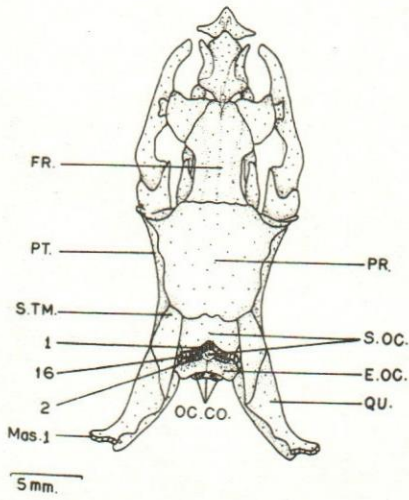


Fig. 1

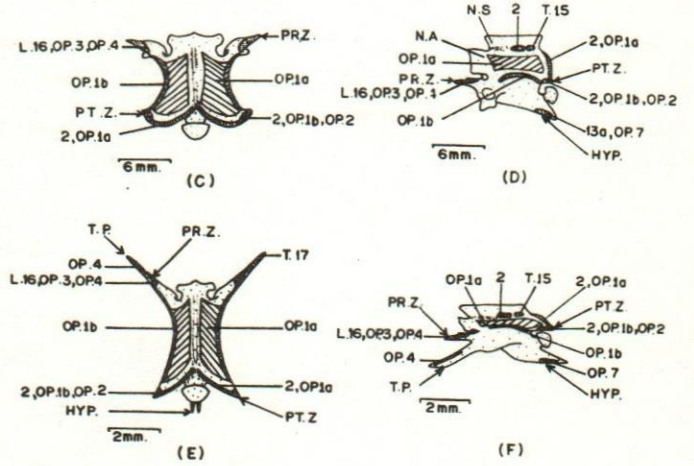
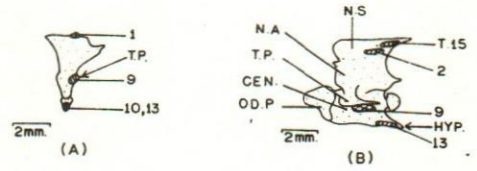


Fig. 2

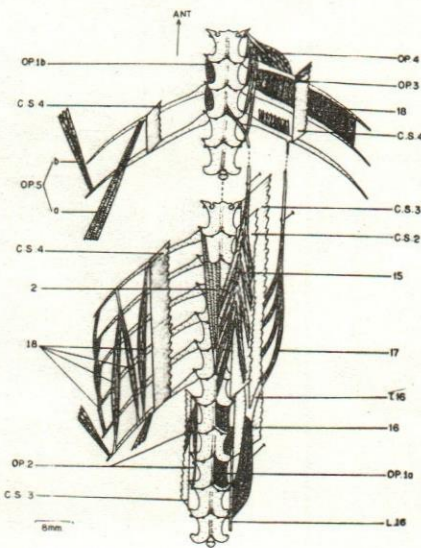


Fig. 3

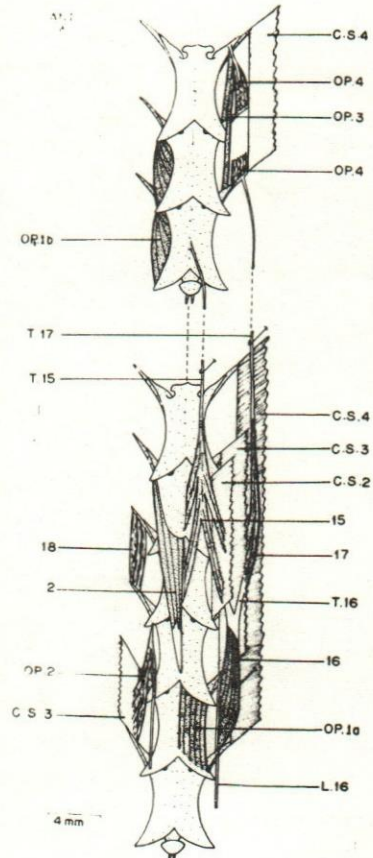
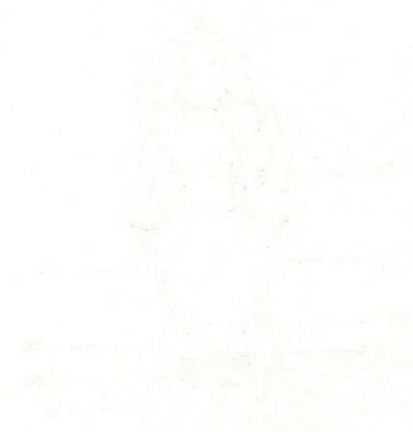


Fig. 4



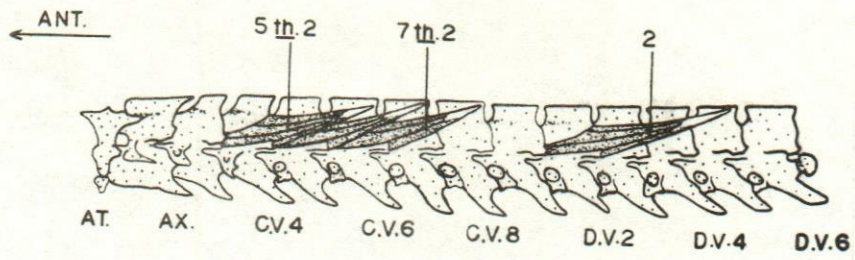


Fig. 5

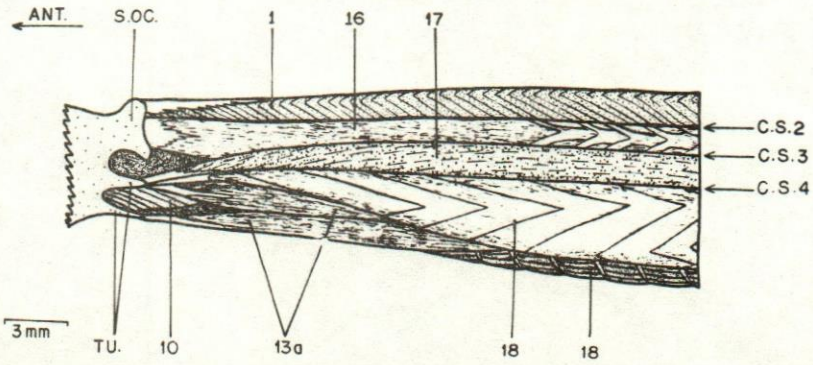


Fig. 6

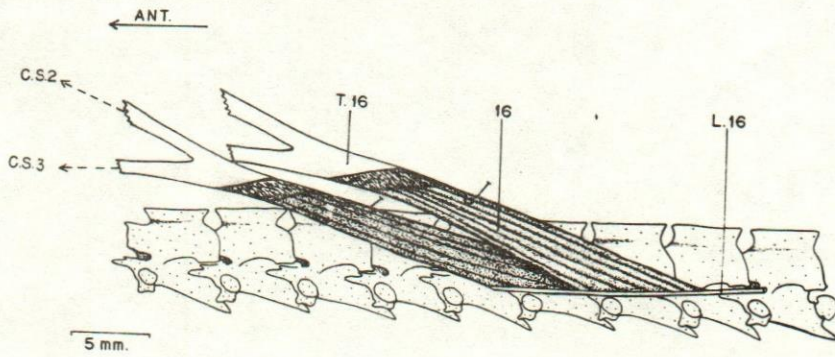


Fig. 7

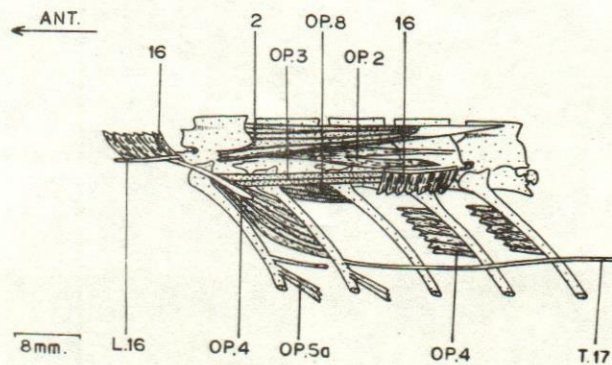


Fig. 8

Fig. 2



Fig. 6

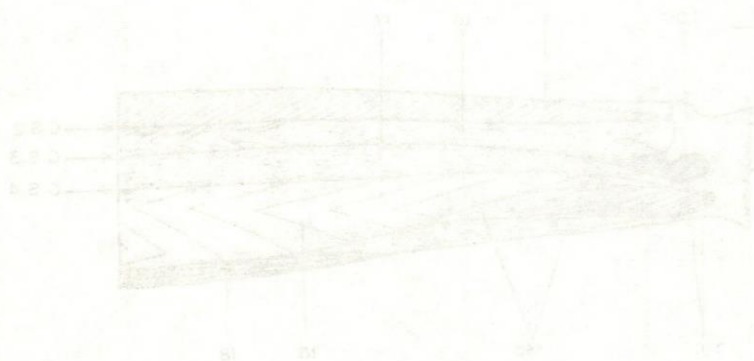


Fig. 7

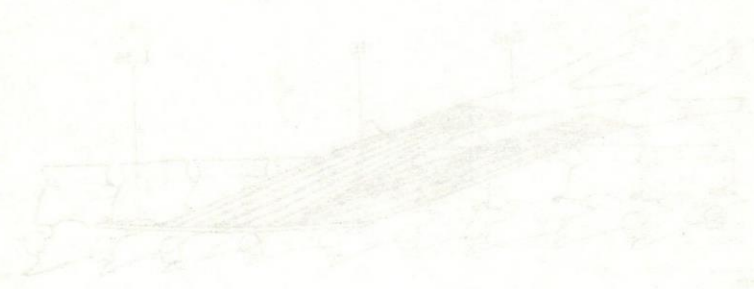


Fig. 8



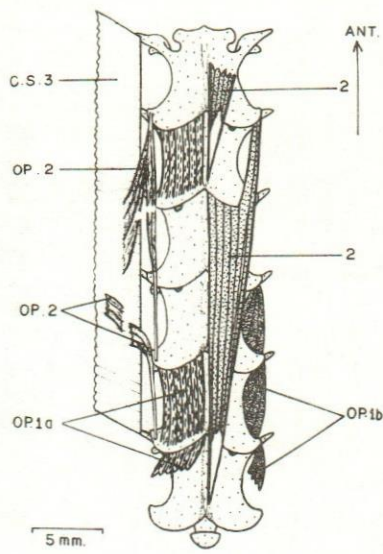


Fig. 9

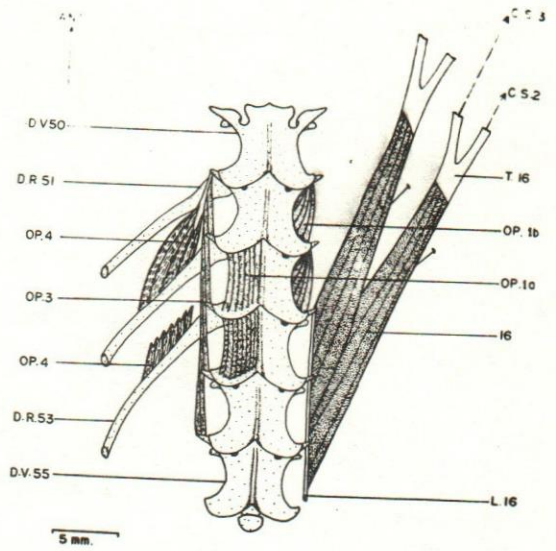


Fig. 10

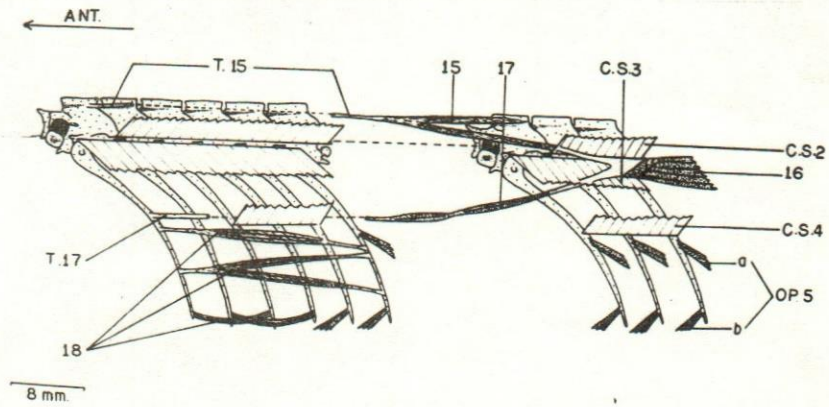


Fig. 11

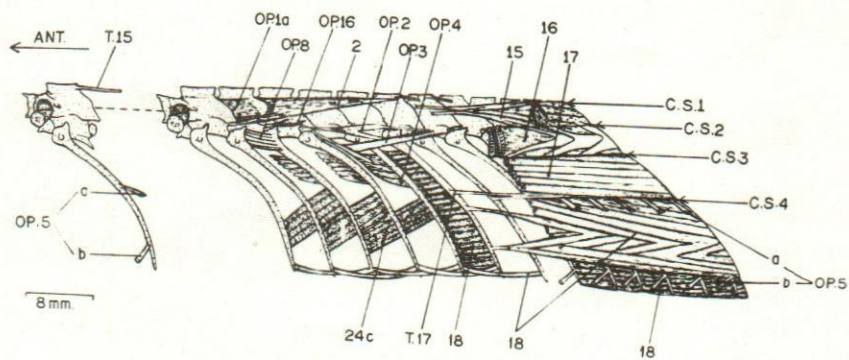


Fig. 12