AN ESSAY ON

CERVICAL PLEXUS BLOCK

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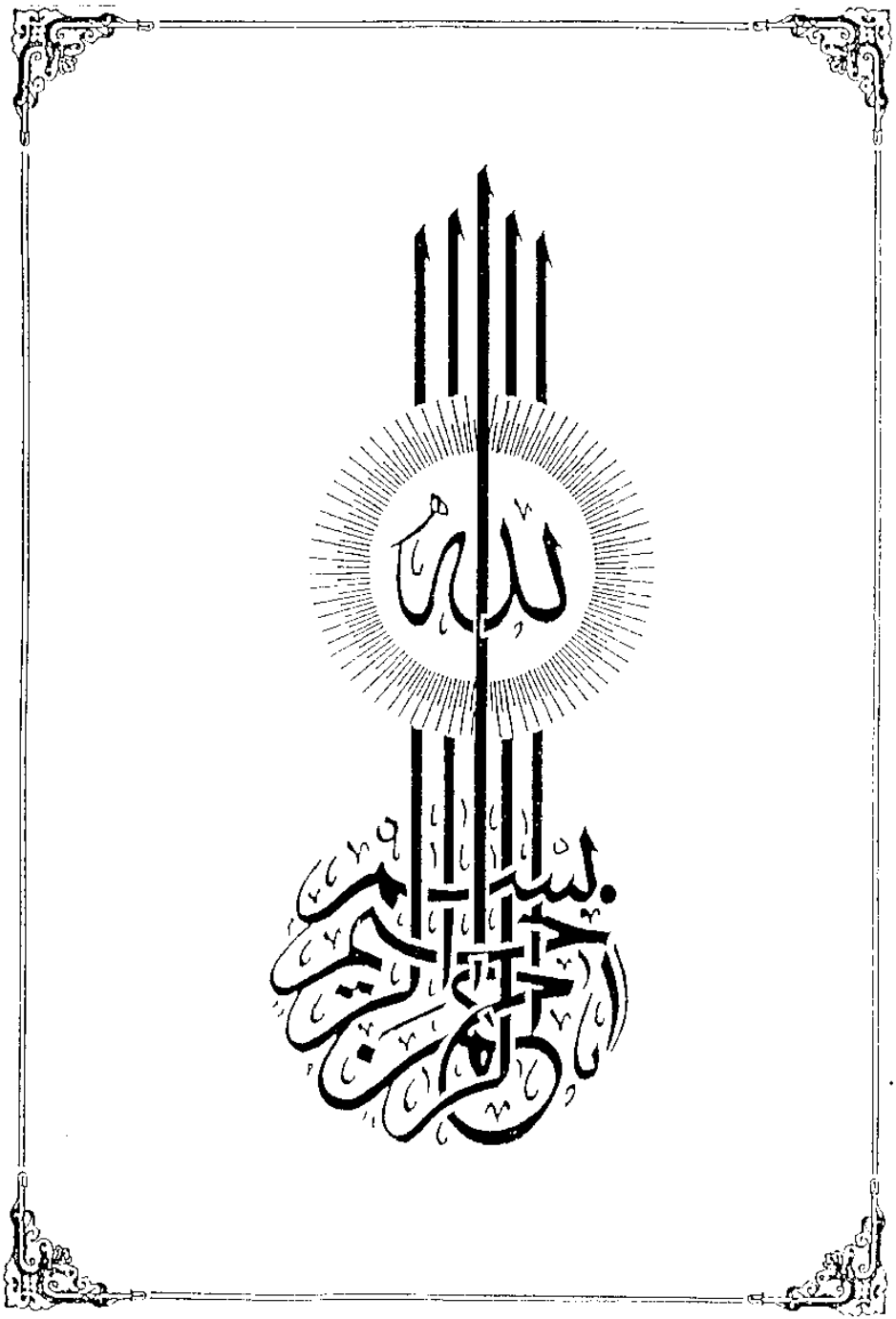

CONTENTS
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A) Some Anatomical Relevant Data Of The Neck And The Cervical Plexus 1

1- Some Relevant Topographic Data Of The Neck . . . 2

2- Formation Of The Cervical Plexus 6

3- The Branches Of The Cervical Plexus 9

B) Techniques And Drugs Used 17

1- Historic Background 18

2- Premedication And Sedation 18

3- Some Pharmacological Relevant Data Of The Drugs Used 20

4- Properties Of The Local Anaesthetic Drugs Used. 23

5- Apparatus 25

6- The Posterior Approach 26

7- The Lateral Approach 27

8- Interscalene Single-Injection Technique 31

9- Superficial Cervical Nerves Block 34

C) Therapeutic Uses Of The Cervical Plexus Block. . . 35

1- Operations In The Neck 36

2- In The Pain Clinic 39

D) Complications Of Cervical Plexus Block 41

1- Psychogenic Reactions To The Local Technique. . 42

2- Untoward Systemic Effects Of The Local Anaesthetics And Their Adjuvants 42

3- Complications Of Bad Injection Technique . . . 52

E) References 56

F) Arabic Summary 63

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Introduction

The clinical use of the majority of the regional analgesic techniques had been greatly diminished since the widespread use of the general endotracheal anaesthesia , at the middle of this century .

A new look for clinical application of the regional analgesic techniques has been started in the pain clinic, in order to control and manage some painful conditions .

In this essay we have to restudy and re-evaluate the cervical plexus block as one of the ancient regional techniques .

SOME ANATOMICAL RELEVANT DATA OF THE NECK AND THE CERVICAL PLEXUS

Some Relevant Topographic Data Of The Neck

The cervical spinal column rises from the upper border of the first thoracic vertebra,which lies at the highest part of the sloping thoracic operculum .

A mass of extensor musculature lies behind the vertebrae, it is supplied segmentally by the posterior primary rami,and supports the cervical spine and head.

A much smaller amount of prevertebral flexor musculature lies in front of the vertebrae,it is supplied segmentally by anterior primary rami. This musculature comprises Longus colli , Rectus capitis anterior , Rectus capitis lateralis , Longus capitis , Scalenus anterior , Scalenus medius , Scalenus posterior and Levator scapulae .

The whole mass is covered over by the prevertebral fascia; in front of it , lie the viscera of the neck : pharynx and oesophagus, larynx and trachea. In front of these, and on each side , the carotid sheaths with the cervical sympathetic trunk behind it lying one each side of the pharynx .

Emerging into the neck are the ninth , tenth , eleventh and twelfth cranial nerves .

Surrounding the whole neck is a collar of fascia, the investing layer of deep cervical fascia , which contains Trapezius and Sternomastoid muscles .

The prevertebral fascia :

This is a firm , tough membrane that lies in front of the prevertebral muscles . It extends from the base of the skull in front of the Longus capitis and Rectus capitis lateralis dowenwards to the lower limit of the Longus colli muscle.It extends sideways across the Scalenus anterior , Scalenus medius and Levator scapulae muscle .

In the posterior triangle of the neck it covers the muscles that floor the triangle , and, since it crosses in front of the anterior tubercle of the cervical transverse processes , all the cervical nerve roots (and thus the cervical plexus and trunks of the brachial plexus) lie deep to it .

Therefore , it becomes apparent that the fascia investing the muscles and tendons lying anterior and posterior to the cervical plexus provides a fascial envelope around the plexus .

The lymph nodes of the posterior triangle and the accessory nerve lie superficial to it . It has also the third part of the subclavian artery (not the vein) deep to it ; it becomes prolonged over the artery below the clavicle as the axillary sheath .

The fascia is pierced by the four cutaneous branches of the cervical plexus .

The posterior triangle :

This is an aria enclosed between the Sternomastoid and the Trapezius muscle . Its apex lies high up at the back of the skull on the superior nuchal line . Its base is in front of the root of the neck and consists of the part of the clavicle lying between the two muscles , generally the middle third of the bone . Its roof is formed of the investing layer of deep cervical fascia.

Beneath this fascia may be seen , from above downwards , portions of the following muscles :
Splenius , Levator scapulae ,Scalenus posterior , Scalenus medius , Scalenus anterior. The prevertebral fascia plasters dowen upon these muscles , the subclavian artery, the three trunks of the brachial plexus and the loops of the cervical plexus .

The accessory nerve emerges beneath the posterior border of Sternomastoid at the junction of its upper and middle thirds , and passes almost vertically downwards on Levator scapulae to disappear beneath the anterior border of Trapezius at the junction of its middle and lower thirds (Last , 1978) .

Formation Of The Cervical Plexus

The cervical plexus is formed by the anterior divisions of the upper four cervical nerves which unite by a series of loops to form the plexus .

The loops are three in number , C1 to C2 , C2 to C3 and C3 to C4 , with a further loop, C4 to C5 ,often present to connect the cervical with the brachial plexus ; they lie on the Scalenus medius and Levator scapulae under cover of Sternomastoid .

* The anterior primary ramus of C1:

It is entirely motor.It emerges from the vertebral canal in the groove on the posterior arch of the atlas immediately behind the superior articular facet; here the nerve intervenes between the posterior arch and the vertebral artery .

The nerve then runs forward on the lateral side of the lateral mass , lying medial to the vertebral artery,as this emerges from its foramen transversarium.

Twigs of supply are given to Rectus capitis lateralis and anterior and to Longus capitis, then the nerve

descends to form a loop with the ascending branch of C2 in front of the transverse process of the atlas .

* The anterior primary ramus of C2:

Emerges posteriorly to the superior articular process of the axis , then passes forwards on the lateral side of the vertebral artery . It divides into an ascending branch, which joins C1, and a descending branch which loops to join C3 .

* The anterior primary rami of the remaining cervical nerves :

Emerges from the intervertebral foramina,anterior to their articular pillars and lateral to the vertebral artery .

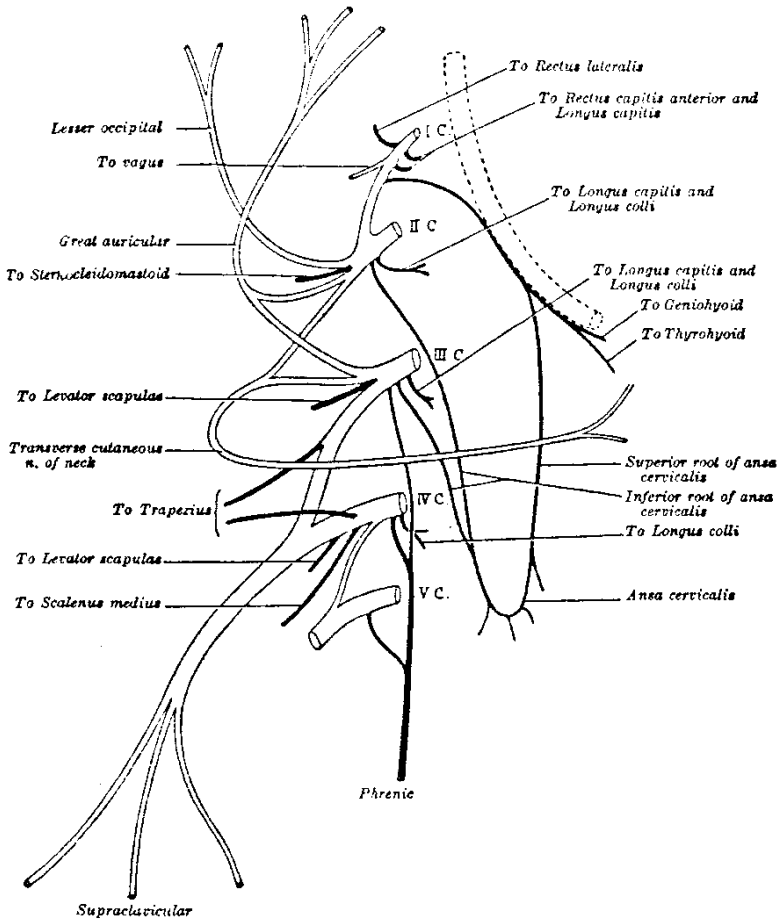
* Site and distribution of the plexus :

The cervical plexus is placed opposite the first four vertebrae , beneath the internal jugular vein and the Sternomastoid , in front of the Scalenus medius and Levator scapulae .

From the union of the second and third nerves ,

superficial branches are supplied to the head and neck . And from the junction of the third and fourth, arise some of the cutaneous nerves of the shoulder and chest .

Muscular and communicating branches springs from the same nerves (Ellis and Feldman , 1977) .



A plan of formation and branches of the Cervical plexus (after:Gray's anatomy)