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Amsaphalaka Marma - A Cadaveric Study

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ABSTRACT

There are total of 107 Marma which are vital points where there is a Sannipata of Mamsa, Sira, Snayu, Asthi, Sandhi along with the Prana resides. Among them Amsaphalaka Marma is Prusthagata Asthi Marma, two in number and Vaikalyakara type of Marma, located on Pristhavansa Ubhaya to (both side of vertebral column) and is related to Trika. Trauma to Amsaphalaka Marma results in Baahuswapa and Shosha. Here Marmabhighata Lakshan can act as predictors of the structures involved. In this study, an attempt is made to find out exact location of Amsaphalaka Marma and its relations with other anatomical structures with the help of cadaveric dissection. The study concludes that the location of Amsaphalaka Marma may be considered as just above the superior border of the spine of the scapula on either side of the vertebral column.

Key words: Marma, Amsaphalaka, Baahuswapa, Shosha, Trika.

INTRODUCTION

The term breath is emphasized in equivalence to the subtle life force energy for the existence of mankind. This vital energy is termed as prana, which paves way in understanding different structures in the human body. Term Atma Swaroopa is coined for prana due to existence all over. Concept of Marma was first introduced in Samhita Kala. There are 107 Marma^[1] described, as these are the Sannipata of Mamsa, Sira, Snayu, Asthi, Sandi where Prana resides.^[2] These are classified into 5 variety on the basis of predominant of structure involved, effect of injury, location on the body^[3] and also detail about the each Marmabhighata

Lakshana^[4] are explained.

Totally 8 Asthi Marma are explained in classics and accepted by various authors unanimously irrespective of any discrimination as evident in other types of Marma which quotes its uniqueness.

Table 1: Classification of Marma based on structure^[5,6,7]

Marma	Sushruta	Vagbhata	Bhavaprakasha
Mamsa Marma	11	10	11
Sira Marma	41	37	47
Snayu Marma	27	-	21
Asthi Marma	8	8	8
Sandhi Marma	20	20	20
Dhamani Marma	-	9	-
Total	107	107	107

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Amsaphalaka is *Asthi Marma* and 2 in number, *Ardha Angula*^[8] in *Pramana* and *Vailakyakara*.

MATERIALS AND METHODS

The study has been conducted in two parts:

- 1. Conceptual study** - Classical literature, modern literature, books, thesis, journal articles, and internet materials were reviewed and related information and references were collected and analyzed scientifically to determine the location and anatomical aspects of *Amsaphalaka Marma*.
- 2. Cadaveric study** - A thorough dissection of shoulder region and back was carried out on embalmed human male cadavers in the dissection hall of *Rachana Sharira* department and anatomical structures found in this region was confirmed.

CONCEPTUAL STUDY

Etymology

The word *Amsaphalaka* is formed by the union of the two words i.e., *Amsa* and *Phalaka*.

Amsa - अंस् + अच् = अंस

The Word *Amsa* means Skandha (shoulder)

Phalaka – Nirukti of word *Phalaka* is “*Asthikhandam Iti*”

Table 2: *Asthi Marmas*^[9]

<i>Marma</i>	<i>Sushruta</i>	<i>Vagbhata</i>
<i>Katikataruna</i>	2	2
<i>Nitamba</i>	2	2
<i>Amsaphalaka</i>	2	2
<i>Shanka</i>	2	2

Location

Amsaphalaka Marmas are located one on either side of the upper part of the *Prushta Vamsha* (vertebral column).^[10]

It is *Prustagata Asthi Marma*, *Vaikalyakara* and *Ardha Angula* in *Pramana*^[11]

They are located in the region of *Trika*, injury of which causes *Bahuswapa* and *Shosha*.^[12]

CADAVERIC STUDY

The dissection of back was carried out on human male cadaver by following the guidelines of BD Chaurasia and Cunningham’s practical anatomy.^[13,14]

The cadaveric study was carried out as follows

Cadaver was placed in prone position. First *Trika* region was identified and marked by drawing one line from the Acromioclavicular joint of right side to the left side and a vertical line was drawn from the external occipital protuberance towards the previous line where it intersects with each other.

Region of *Amsa Phalaka Marma* was marked on scapular region on the line extending laterally from *Trika* which lies on suprascapular fossa nearer to the medial border of scapula. The *Marma* point was marked as *Ardha Angula Parivistara Pramana* (0.9cm) on both the sides of vertebral column and the skin was removed layer by layer gently.

The anatomical structures superficial to deep were noted as follows

1. Trapezius muscle
2. Supraspinatus muscle
3. Supraspinous fossa of scapula
4. Suprascapular nerve



Fig. 1: location of *Amsaphalaka Marma*



Fig. 2: Trapezius muscle

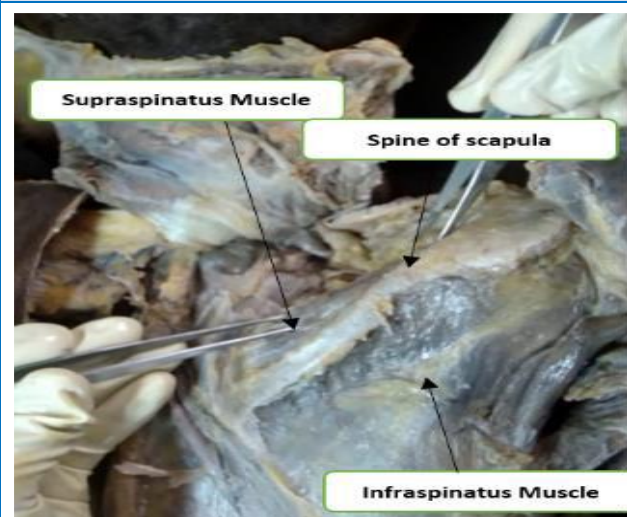


Fig. 3: Dorsal aspect of scapula

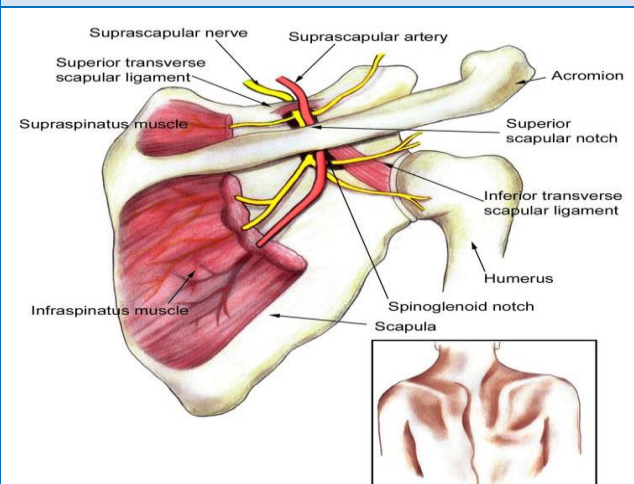


Fig. 4: Suprascapular nerves and vessels with muscles

DISCUSSION

Discussion on location: *Amsaphalaka* is *Prustagata Asthi Marma* associated with *Trika*. *Acharya Sushruta* stated that the *Marma* situated in upper part of the *Prishtha* (back) on both sides of *Prishthavansha* (vertebral column) and attached or near to *Trika* are known as *Amsaphalaka Marma*.

According to Prof. D. G. Thatte, scapular region and supra scapular nerve are representative of *Amsa Phalaka Marma* injury of which are responsible for atrophy and loss of sensation in the upper extremities.

The following structure found at the site of *Amsaphalaka Marma* - scapula bone,^[15,16] spine of scapula,^[17,18] supraspinous fossa,^[19] suprascapular nerve^[20] and vessel,^[21] supraspinatus muscle, trapezius muscle^[22]

Discussion on Marma Vastu

- *Asthi* - Supraspinous fossa of scapula.
- *Mamsa* - supraspinatus muscle.
- *Sira* - suprascapular vessels.
- *Snayu* - suprascapular nerve.

Discussion on Marma Pramana

The measurement of *Marma* is about 0.9cm on either sides of the vertebral column at the supra scapular fossa near the medial border of scapula.

Discussion on Marma Viddha Lakshana

Injury to this *Marma* cause *Swapa*^[23,24] [numbness] and *Shosha*^[25] [wasting] of the upper extremity.

Numbness and wasting of the arm are usually caused by damage or compression of the suprascapular nerve passing through spinoglenoid notch. Injury to suprascapular nerve causes the wasting of supraspinatus and infraspinatus muscles. Main complaints are pain, weakness in shoulder, numbness in the arm and wasting in the arm.^[26]

- The injury to the spinal accessory nerve^[27] leads to severe wasting of trapezius which can lead to drooping of the shoulder, weakness, numbness and wasting in the arm.

- Injury at the site of spine of the scapula will damage the structure around it. Trauma at this site will cause damage to the suprascapular artery^[28] which leads to massive hemorrhage and intraluminal thrombosis that will disrupt blood circulation to the supraspinatus and infraspinatus muscles and cause wasting of muscles, which subsequently causes numbness and wasting of the arm.
- If foreign body penetrate deeper parts – severe damage to brachial plexus which will lead to paralysis of upper extremity.
- Moderate damage of these nerves and vessels causes numbness and wasting^[29]
- If foreign body penetrates superficial parts - damage to suprascapular nerves and artery which results in paralysis of abductor muscles (supraspinatus, deltoid, serratus anterior, trapezius) of the shoulder joint along with wasting of the same.

CONCLUSION

Marma are the physio-anatomical vital areas of the body in which *Mamsa, Sira, Snayu, Asthi, Sandhi, Dhamani* unite and where the prana resides. Injury to these vital areas leads to *Marana* or *Marana Sadrushya Vedana*. Based on the literary and cadaveric studies, it has been concluded that the *Amsaphalaka Marma* can be considered as the region of supraspinous fossa nearer to the medial border of scapula on either side of the vertebral column which has a measurement of about 0.9cm. Based on *Vidhya Lakshana Baahuswapa* can be considered as numbness of the arm and *Bahushosha* as wasting of the arm. *Baahuswapa* and *Bahushosha* can be claimed as deformities which uphold *Amsaphalaka Marma* as *Vaikalyakara Marma*. Hence it seems appropriate to consider *Amsaphalaka* as a *Prustagata Asthi Marma* of *Ardha Angula Pramana* and *Vaikalyakara* type of *Marma*.

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