

Anatomical Study of Gulpha Marma Using Cadaveric Dissection Method

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Abstract-

Traumatic injuries are very common in today's life due to increase in incidence of road accidents, use of machines, accidentally toppling over small barricades in household or street. Pedestrians also get injury to gulpha marma when the land is unnoticed ditched in the street, or fall.g

Anatomical changes take place at gulphamarma after trauma. So knowledge of structures involved and structural deformity is important. Hence by using cadaveric dissection method knowledge about structures present at site of gulphamarma is studied.

Keywords- Gulphamarma, cadaveric dissection, Ankle joint

Introduction-

Marma is a vital point of the body. Acharya Sushruta have described 107 marma in human body¹. Marma is defined as confluence of muscles, veins, ligaments, bones and joints. These are the places where the prana resides². Usually these five structures muscles, veins, ligaments, bones and joints lie in one region and such region is called marmasthana, among these five structures any one may be the predominant that structure name will be considered as of that marma. Hence according to rachanatmak classification marma are of five types 1.) Mamsamarma 2.) Asthi marma 3.) Sanyumarma 4.) Siramarma 5.) sandhi marma³. Acharyas have described 20 sandhimarma

TABLE NO 1- INFORMATION ABOUT SANDHI MARMA⁴

NAME OF SANDHI MARMA	NUMBER PRESENT IN SHARIRA
JANU	2
KURPARA	2
GULPHA	2
MANIBANDHA	2
KUKUNDARA	2
KRIKATIKA	2
SIMANTA	5
ADHIPATI	1
AVARTA	2

Gulpha Marma-

Gulphasandhi is one of the important sandhi in lower limb as it plays a vital role in locomotion and weight bearing. Acharya Sushruta have structurally classified it as Kora sandhi⁵ and functionally have classified it as Bahuchala sandhi⁶. And have explained that gulphasandhi is present in a region between paada and janghapradesha.

The details of Gulphamarma are as follows-

TABLE NO -2 INFORMATION OF GULPHA MARMA⁷

NAME OF THE MARMA	GULPHA
LOCATION	JOINT BETWEEN PAADA (FOOT) AND JANGHA (LEG)
NUMBER	2
RACHANATMAK	SANDHI MARMA
PARINAM	RUJAKARA MARMA
MARMA VIDHA LAKSHAN	RUJA (PAIN), STABDHA PAADATA (RESTRICTED MOVEMENT) KHANJATA (FUNCTIONAL DEFORMITY)

Marma plays an important role in surgery. Hence they are rightly called as shalyavishayardha. Acharya Sushruta stated that knowledge of marmasharir is important for the surgeon while doing surgical procedure for purpose

of avoiding them,so as to cut into them could result in a catastrophic outcome.

Gulphamarma(Ankle joint) is one of the important joint in the human body for various locomotory and weight bearing function. Hence it is important to observe the five basic stuctures present in it with the help of modern Anatomy by using cadaveric dissection method.

Material And Methodology-

Material-

- 1.) Literary study – literature about Marmasharira available from Ayurvedic and modern texts.
- 2.) Cadaveric study- one female cadaver
- 3.) Instrument- Dissection kit.

Methodology-

- 1.) Literary study of Gulphamarma was done using all the related Ayurvedic and modern texts.
- 2.) Dissection of selected female cadaver was done with the help of dissection instruments of related Gulphamarma (Ankle joint) at the dissection hall of AnandAyurved College Vajjapur,DistAurangabad,Maharastra.
- 3.) From the basis of literary study,identification of Gulphamarma was done on the cadaver.
- 4.) On the basis of dimensions given in samhitas,the area was marked around the gulphamarma point.
- 5.) Detailed dissection was done related with marked points.
- 6.) With the help of neat and detailed dissection ,related structures of Gulphamarma in terms of Mamsa(muscles) ,Sira(vessels) , Sanyu(ligaments/tendons) ,Asthi (bones) and Sandhi (joints) was identified as mentioned in hypothesis.
- 7.) Related observation were correlated with the hypothesis about the Ayurvediyarachana of Gulphamarma under the heading of Mamsa,Sira,Sanyu,Asthi and sandhi.

Result And Discussion-

Result-

TABLE NO 3 – STRUCTURES SEEN AT THE SITE OF GULPHA MARMA DURING THE DISSECTION⁸

SR NO.	Ayurvedic view	Modern correlation
1	Mamsa	Peroneuslongus ,Peroneus brevis,Superiorperoneal retinaculum
2	Sira	Perforating branches of fibular artery and fibular nerve.
3	Sanyu	Lateral ligament of the Ankle which consist of 3 separate ligament-1.) Anterior talofibular ligament 2.)Calcaneofibular ligament 3.) posterior talofibular ligament
4	Asthi	Tibia,lateral malleolus of fibula and talus
5	Sandhi	Joint that lies between tibia,fibula and talus

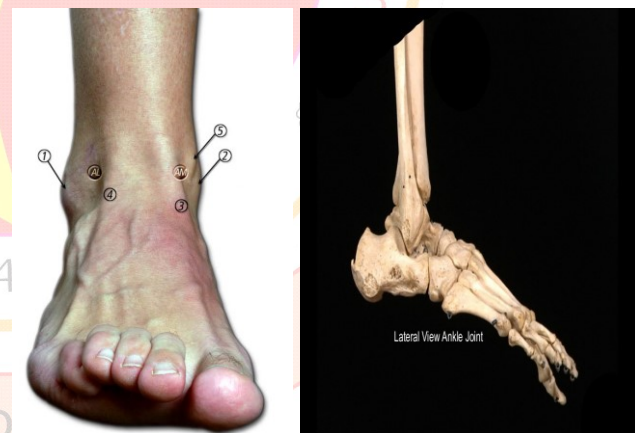


Fig. 1 Cutaneous landmarks of anterior Fig no 2 lateral view of ankle joint view of the ankle. AL, anterolateral portal; AM, anteromedialportal; 1, lateral malleolus; 2, medial malleolus; 3, tibialis anterior tendon; 4, extensor digitorumlongus tendon; 5, great saphenous vein.

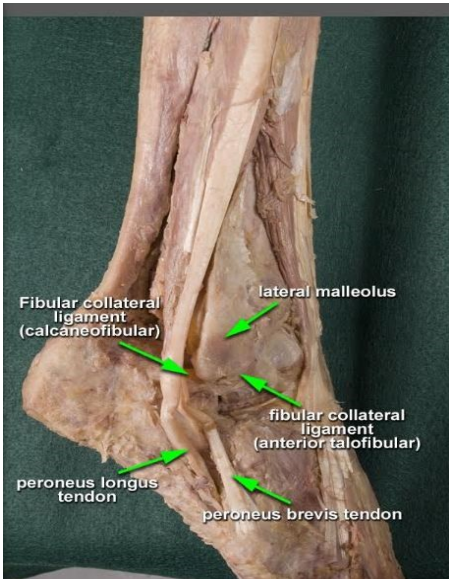


Fig no -3 showing Fibularislongus

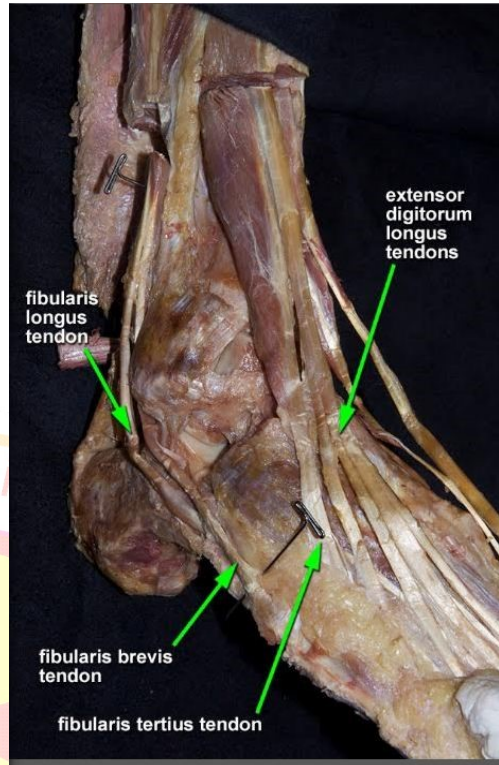


Fig no 5 showing Fibularis brevis tendon

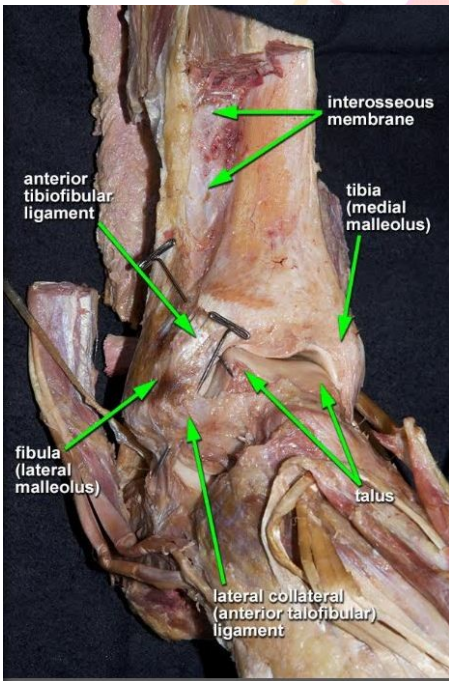


Fig no 4 Anterior Ankle (peroneuslongus)

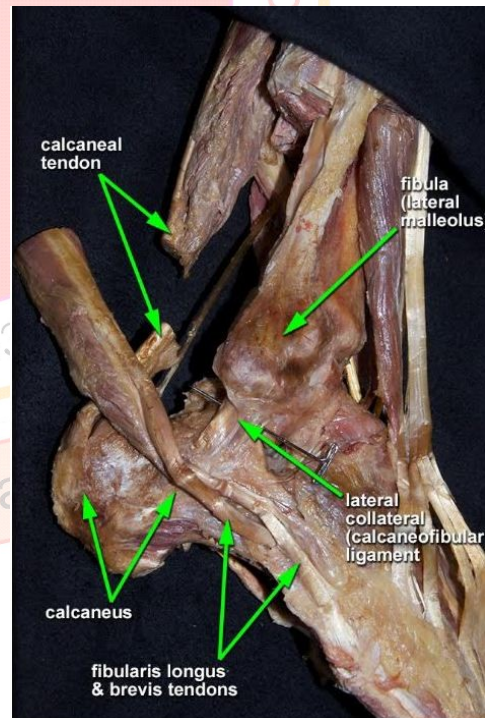


Fig no 6 showing lateral collateral (peroneus brevis tendon)ligament

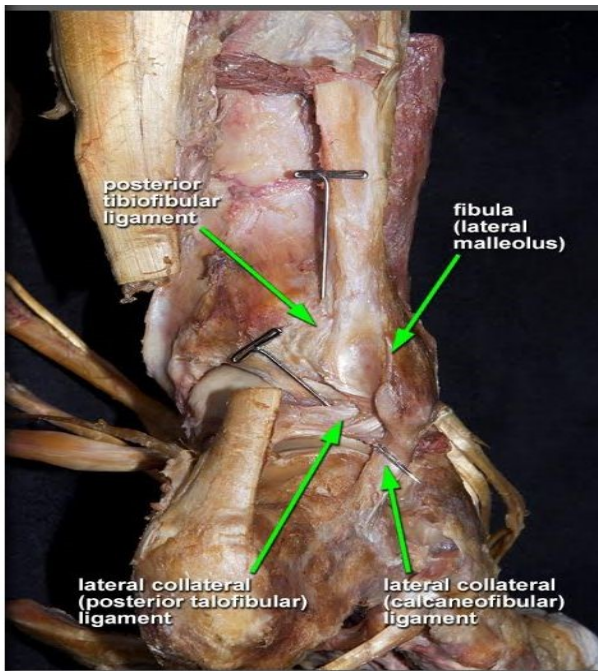


Fig no.7 showing posteriortibiofibular ligament

Discussion-

Classification of marma have been done on the basis of location, structure, measurement and injury effect.

In this study more importance is given on classification of marma on basis of structure (Rachana).Gulphamarma is present in lower limb in between leg and foot .It is a Rujakarmarmaand hence injury to this marma will produce Ruja (pain).The site of Gulphamarma is at the Ankle joint.The five Comparative structures seen during the dissection are as

Mamsa –Peroneuslongus, Peroneusbrevis, Superiorperoneal retinaculum.

- Sira- Perforating branches of fibular artery and fibular nerve.
- Sanyu-lateral ligament of the ankle which consist of three diferent ligament – Anterior talofibularligament, calcaneofibular ligament , Posterior talofibular ligament .
- Asthi-Lower end of Tibia , lateral malleolus of fibula and Talus.
- Sandhi-Joint that lies between Tibia ,Fibula and Talus.

The Gulphamarma is present in lower limb . It is Rujakarmarma that causes Ruja , Stabdhapaadata and Khanjata on injury.The injury to

Gulphamarma (Ankle joint) results into sprain , fractures , tendon rupture,tendonitis , tendinopathy, dislocation, sinus tarsi syndrome,tarsal tunnel syndrome.⁹

Hence if trauma occurs at Gulphamarma then knowledge of trauma site,structures involving and structural changes is important.Which Mamsaaadisangathan are involved and change in its structure occurred should be implicit .So that treatment can be done accordingly. So structures present at the site of Gulphamarma (Ankle joint) were studied by cadaveric dissection method.

Conclusion-

Sushrutacharya have described Marma as Shalyavishayardha. Hence Knowledge of Marma site, structure present is important from suregons point of view while performing surgical procedures. Gulphamarma represents the Ankle joint area along with its related structures are Peroneuslongus, Peroneusbrevis, Superior peronealretinaculum, Perforating branches of fibular artery and fibular nerve, lateral ligament of the ankle which consist of three diferent ligament – Anterior talofibularligament, calcaneofibular ligament, Posterior talofibularligament, Lower end of Tibia, lateral malleolus of fibula and Talus, Joint that lies between Tibia, Fibula and Talus.

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