

Rationale of Karnavedhan Sanskara in preventive and therapeutic health care: a scientific reappraisal

Abstract

Karnavedhana is one of the important *Sanskara* of Childhood. For overall wellbeing, it is advocated to be done in a healthy child by a trained and expert *Vaidya*. The main purpose of *Karnavedhana Sanskara* is for *Raksha* (protection against *Grahas*) and *Karnaabhusana* (ornamental purpose). The pierce is advised in the sixth or seventh month of age at the naturally designed hole in the ear of the child enlightened with the sun's rays (*Daivkrit chhidre*). In male child right ear lobe and in female child left ear should be pierced first then the *Pichhu varti* be inserted. The central concha (Site of *Daivekrite Chhidra*) of the ear is innervated by the Vagus nerve and serves as the region for autonomic regulation of pain and pathology originating from internal organs. This part is found to be innervated by ABVN which regulates the parasympathetic functions. The physiological significance of the Vagus nerve is due to its widespread distribution. Vagus nerve stimulation has been approved by FDA as an alternative treatment for neuropsychiatric diseases such as epilepsy and depression. *Karnavedhan* stimulate the immune system in response to injury to the ear lobules which initiate antigen-antibody reaction in early life period so as to bring a secondary immunity against several infections. Theory of Acupuncture states that the earlier the ear is pierced it is good for the meridians connecting the brain passing through this area and helps in the quick development of the brain. Also, the site of *Karnavedhan* has least vascular innervation, hence most safe site for puncturing. Clinical trials are needed to evaluate the effect of *Karnavedhan Sanskar*.

Keywords: *Karnavedhan Sanskar*; *Daivkrit chhidre*, auricular branch of vagus nerve

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Abbreviations: STA, superficial temporal artery; PAA, the posterior auricular artery, ABVN, auricular branch of vagus nerve; FDA, food and drug administration; DC, *Daivakrita Chhidra*; TCM, traditional chinese medicine; ANS, autonomic nervous system; tVNS, transcutaneous vagus nerve stimulation

Introduction

To attain a healthy long life is a wish for humans since antiquity. *Ayurveda* is a natural health care system that aims to achieve optimal health and well-being through a holistic approach that addresses mind, body, behaviour and environment. It emphasizes on prevention, health promotion and provides treatment for disease. *Kaumarbhritya* is one among the eight branches of *Ayurveda* which deals for the wellbeing of human from beginning of life in mother's womb up to the attainment of adulthood without physical and mental difficulties. Various *Sanskara* is described in *Kaumarbhritya* since *Pauranika Kala* (ancient time). The term *Sanskara* means *Gunaantaradhanam*,¹ which means incorporating desired qualities. Mainly sixteen out of various *Sanskaras* are described in *Ayurveda* which are practiced and has its own socio- cultural significance and scientific wisdom.² *Karnavedhana* is one of the important *Sanskara* practised in childhood. Its main purpose is for *Raksha* (protection) from *Graha* and *Abhusana* (ornamentation).³ There are different views of performing this *Sanskara*. According to *Acharya Susruta* it is performed in 6th or 7th month whereas *Acharya Vagbhata* has mentioned it to be performed in 6th, 7th and 8th month. There is no direct reference about it in *Kashyap Samhita* as the chapter having the description is incomplete.⁴ It has to be done in 3rd or 5th year according to *Dharma Grantha*. *Acharya Dalhana* in his commentary on *Sushruta Samhita* cleared that the month stated to consider 'Bhadrapada' month as first month of year, it means 6th month is 'Magha' and 7th month is 'Phalgun'. In these months *Bala* of the body is naturally at its optimum level.⁵ The sixth

or seventh month, on fortnight and auspicious date with recitation of auspicious hymn, in the lap of wet-nurse or male attendant engaging and consoling the child with toys, the *Vaidya* (physician) should pull the ear of the child with his left hand and pierce the ear lobe with his right hand at the *Daivakrita Chhidra* (DC) which is the point allowing maximum translucency to the sun rays or any other light source to pass from it.³ The site of puncture should be in the middle of the ear lobe, slightly towards the cheek, where there is maximum translucency from the light source. This spot is marked by the colour of *Laksha Rasa* (*Laccifer lacca*) a reddish-brown colour resin. The puncturing should be done with a single and straight stroke; it should be neither up, sideward nor downward.

Other than the context of *Sanskara*, piercing is said to be done in *Karnapali* (ear lobule). In thin ear lobule, *Suchi Shastra* (needle) is used on the other hand in thick *Karnapali*, *Aara Shastra* (thick needle) is used. In male child right ear lobe should be pierced first and in female child left ear should be pierced first and then the *Pichhu Varti* (cotton thread) be inserted.⁶ In case of *Upadrava* (complication) paste of *Yasthimadhu* (*Glychrrizha glabra*), *Eranda moola* (root of *Ricinus communis*), *Manjistha* (*Rubia cordifolia*), *Yava* (*Hordeum vulgare*) along with Honey and *Ghrta* (clarified butter) is advised to be applied locally which have *Vrana Ropaka* (wound healing) and *Vedana Shamaka* (analgesic) properties. For the maintenance of pierced site, it is sprinkled with *Ama taila* (unboiled oil) and thick *Varti* (thick cotton threads) are to be inserted after every three consecutive days.

Discussion

Daivakrita Chhidre is a point which is very thin and devoid of *Sira* (blood vessels and nerve innervation) hence pain and bleeding are absent after piercing the site. The external, middle, and internal ear are the three parts of the ear. The lowest part of the auricle is soft and consists only of fibrofatty tissue covered by skin. This part is called the

lobule and it is generally pierced for ornamental purposes. The fusion of the six auricular hillocks is a complex process that occurs during the formation of the external ear. Development begins in the third week of pregnancy with the creation of an otic disc from ectoderm thickening. It is formed from single piece of yellow elastic cartilage covered with perichondrium and skin.⁷ The human ear lobe is made up of tough areolar and adipose connective tissue that lacks the hardness and elasticity of the rest of the auricle. Since, ear lobe does not contain cartilage it has a substantial blood supply and may aid to warm the ear and maintain balance. The ear lobe is made up of epithelium and connective tissue and is derived from dermatomes. The dermis is made up of mesenchymal cells, whereas the sclerotome is made up of mesenchymal cells. Other than lobule, the rest of the auricle is divided into a number of parts. These are helix, antihelix, concha, tragus, and scaphoid fossa the large depression called the concha; it leads into the external acoustic meatus. The nerve innervation of external ear is very complex and contributed by the auriculotemporal nerve from the fifth cranial nerve, the great auricular nerve from the cervical plexus, the intermediate nerve of Wrisberg from seventh cranial nerve, and the auricular ramification of the Vagus nerve from the tenth cranial nerve. The motor innervation relies on the seventh cranial nerve. The upper two-thirds of the lateral surface of the auricle are supplied by the auriculotemporal nerve; and the lower one-third by the great auricular nerve. The upper two-thirds of the medial surface are supplied by the lesser occipital nerve; and the lower one-third by the great auricular nerve. The root of the auricle is supplied by the auricular branch of the Vagus nerve. The auricular muscles are supplied through branches of the Facial nerve.

The sources of blood supply are connected to two major ramifications of the external carotid artery, that are the superficial temporal artery (STA) and the posterior auricular artery (PAA). The STA enters the helical root and continues along the margins of the helix, as well as communicates with the PAA, forming a helical arcade running along the helix. The perichondrium, which is adherent to the cartilage, supplies blood to the cartilage. The blood supply of the auricle is derived from the posterior auricular and superficial temporal arteries. The venous drainage is doubled, the anterior veins join the superficial temporal vein. The posterior vein joins the posterior auricular vein and the superficial occipital vein and both of them discharge into the external jugular vein. The lymphatics drain into the preauricular, and postauricular lymph nodes.⁸ Piercing other than the DC causes pain, bleeding and other *Upadrava* (complications) as this can result in complications such as fever, *Manyastambha* (torticollis), *Hanustambha* (jaw stiffness), *Karnashoola* (ear ach) etc.⁵ Piercing other than the DC can cause trauma with induced infection and may cause Perichondritis. Perichondritis, arises from inflammation of the perichondrium and the cartilage. It is observed very frequent among young population, as a complication of high up ear-piercing over cartilaginous tissue.⁹ Sign of inflammation like painful swelling, redness, warmth and tenderness of the pinna at the site of injury, other than the non-cartilaginous tissue of ear lobe and fever are the features of acute Perichondritis.

A French physician (Dr. Paul Nogier), proposed the Nogier's Theory which states the representation of an inverted fetus plan on the external ear. He anticipated such thought after seeing the treatment of Sciatica by a traditional doctor utilizing cautery of a very small auricular area.¹⁰ According to Nogier's Theory there is a neurophysiological connection between auricular reflex points and the central nervous system. There are three different zones on the external ear which are related to different types of neural innervation and different categories of embryological tissue. The central concha

of the ear is innervated by the Vagus nerve and serves as the region for autonomic regulation of pain and pathology originating from internal organs. There is a relationship between the auricle and vagal regulation. Arnold's reflex is one of the somato-parasympathetic reflexes. Eight reflexes are studied and included which are- gastro-auricular phenomenon in man, auricular phenomenon in man, pulmono-auricular phenomenon in man, auriculo-genital reflex in cat, auriculo-uterine reflex in women, oculocardiac reflex in man, Kalchschmidt's reflex in cattle, and coughing attack with heartburn in man. Location of auricular acupoints treating visceral diseases is mainly located at auricular concha.¹¹

In Traditional Chinese Medicine (TCM), Auricular acupressure is a treatment modality in which the external surface of the ear is stimulated to alleviate pathological conditions in the body.¹² The sites for auricular acupressure are called acupoints. Each acupoint onto the ear represent a particular organ or part of the body. These auricular pressure points stimulate and regulate their respective anatomical organ. Different clinical studies had shown beneficial results in variety of health problems like chronic pain, insomnia, lactation failure etc.¹³⁻¹⁶ According to the theory of Acupuncture, a very thin needle is inserted through a person's skin at specific points on the body to various depths. It helps to relieve pain and bring the energy flow back in to proper balance. Points selected for acupuncture are specific areas where nerves, muscles and connective tissue can be stimulated. Stimulation increases the blood flow at that point and triggers the activity of body's defence mechanism. Acupuncture has its effects on the nervous system, endocrine system, immune systems, cardiovascular system and digestive system.

According to Pain Pathway in conjugation with ascending pain sensation pathway, there is a descending pain inhibitory pathway. The descending pain inhibitory pathway travels from the brainstem down the spinal cord; it then activates pain suppressive cells in the dorsal horn of the spinal cord, hence relieves the pain.

Probable mode of action (MOA) of *Karnavedhan* can be explained as, it modifies the autonomic dysfunction by increasing parasympathetic activity. It stimulates the immune system in response to injury to the ear lobules which initiate antigen-antibody reaction in early life period so as to bring a secondary immunity against several infections. The earlier the ear is pierced it is good for the meridians connecting the brain passing through this area and helps in the quick development of the brain. The point of vision is situated in the centre of the lobe which get stimulated. It prevents diseases like hydrocele and hernia.¹⁷ The ear lobes contain meridian points that connects right and left hemisphere of the human brain, which get activated when this point is pierced. It is observed that Auricular electroacupuncture reduces seizure frequency and suppresses epileptic discharges.¹⁸ *Karnavedhan* improves the body's functions and promotes the natural self-healing process by stimulating specific site and can also be thought for MOA of *Karnavedhan*.

Karnavedhan stimulates the vagal nerve. The autonomic nervous system (ANS), plays a crucial role in the maintenance of homeostasis, it is mainly composed of the sympathetic system and the parasympathetic system. There is a physiological significance of the Vagus Nerve due to its widespread distribution. It controls the activity of the cardiovascular, respiratory, gastrointestinal systems and has effects on smooth muscles, blood vessels, sweat glands, and the endocrine system through the parasympathetic function. Vagal tone is found to be regulated by auricular acupuncture or auricular acupressure. Thus, the Auricular branch of Vagus Nerve (ABVN) forms a connection between the auricle and the autonomic regulations. Vagus

Nerve Stimulation (VNS) has been used as a non-pharmacological treatment of epilepsy and depression.¹⁹ Far-field potentials from brainstem after transcutaneous Vagus Nerve stimulation at the auricle have been utilized as a non-invasive method in the early diagnosis of neurodegenerative disorders. Vagus nerve neuromodulation is proposed to be potentially applied as a therapeutic approach for major neurodegenerative disorders.²⁰ It is also proposed that auricular acupuncture may suppress epileptic seizures via activating the parasympathetic nervous system. Not only in epilepsy, depression and other neurodegenerative disorders, transcutaneous Vagus Nerve Stimulation (tVNS) had been hypothesized for the treatment of Autism Spectrum Disorder.²¹ The purpose of *Karnavedhana* for *Raksha* (protection) can be understood by the fact that the surface of the ear is the only location on human body where there is afferent Vagus nerve distribution; that can be stimulated by piercing.²² The pain stimuli of various somatic, visceral, and chemical-sensory receptors follow the “bottom up” path from peripheral nervous system to central nervous system to produce therapeutic effect by influencing central neural processing and mental activities.²³

Conclusion

This article is an attempt to explain the rationale behind the ritual of *Karnavedhan Sanskar* as a protective measure in Ayurveda. Chonche (Site of *Daivakrita Chhidra*) part is found to be innervated by ABVN which can be accurately identified as the thinnest auricular area having maximum translucency. ABVN regulates the parasympathetic functions. Vagal nerve can be stimulated by *Karnavedhan*. There are several auricular acupoints in each ear representing all parts of the body and functional areas. Also, the site of *Karnavedhan* has least vascular innervation, hence most safe site for puncturing. More trials are needed to evaluate the effect of *Karnavedhan Sanskar* in children.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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