

Study of *Karna Srava* (CSOM) and its management with *Nasya*, *Saptanga Guggulu* and *Gandhakadi Taila Karna Poorana*

Research Article

Dave Parth Prakashbhai^{1*}, Vaghela DB², Dhiman KS³, Maniyar Hiten⁴

1. Ph.D.(Ayu) Scholar, 2. Assistant Professor, 3. Professor and HOD
Dept. of Shalakya, I.P.G.T. & R.A., GAU, Jamnagar
4. Assistant Professor, Department of ENT,
M .P. Shah medical college, Jamnagar

Abstract

Karna Srava (CSOM) is the one of the most common complaint encountered in clinical practice of ENT. CSOM involves 65–330 million individuals with draining ears, 60% of whom (39–200 million) suffer from significant hearing impairment. In this study an attempt has been made to treat the “disease” with *Nasya* (Instillation of oil or other medication in nose), *Karna Purana* (Instillation of oil or other medication in ear) and oral medicine and identifying the etiological factors for the disease and most encountered causes in various age groups. *Saptanga Guggulu* orally for *Dushta Vranahara Chikitsa* and *Gandhakadi Taila Karna Poorana* for local *Karna Poorana* procedure were selected in this study. As the *Pratishyaya* (Rhinitis) is the culprit for the disease, in one group *Shadbindu Taila Nasya* was given for five days before starting treatment. For this study total 28 patients were registered and randomly divided into two groups, among which all patients completed the treatment. The effect of treatment was observed both in subjective symptoms and objective parameters. Significant results were observed in subjective criteria in both groups where insignificant results were obtained in objective criteria in both groups.

Key Words: *Karna Srava*, CSOM, *Gandhakadi Taila*, *Karna Poorana*, *Nasya*.

Introduction:

Karna Srava (Ear discharge) signifies discharge from ear but with advancement of medical science and improved hygienic status of society, ear discharge from the external ear is not very common and discharge from internal ear or other cause is very rare condition. But ear discharge from middle ear cavity is till date a common ENT problem.

CSOM (Chronic Suppurative Otitis Media) is the term given to the middle ear discharging problem in the modern medical literature. Both *Ayurveda* and modern science agrees unanimously that nose (Rhinitis) and nasopharynx are the main culprits for *Karna Srava*/CSOM Prevalence surveys, which vary widely in disease

definition, sampling methods, and methodological quality, show that the global burden of illness from CSOM involves 65–330 million individuals with draining ears, 60% of whom (39–200 million) suffer from significant hearing impairment. CSOM accounts for 28, 000 deaths and a disease burden of over two million DALYs (Disease Altered Life Years). Over 90% of the burden is borne by countries in the South-east Asia and Western Pacific regions, Africa, and several ethnic minorities in the Pacific Rim. CSOM is uncommon in the Americas, Europe, the Middle East, and Australia. The ultimate fate of the tympanic perforation is still largely undocumented (1). In India prevalence for this disease is

7.8%, which is considered as high according to WHO. Prevalence is 46 and 16 per thousand in rural and urban population respectively. It is single most important cause for deafness in rural population (2).

As *Pratishyaya* is the root cause for the disease, *Shiro Virechana* was selected in one group. *Dushta Vranahara Chikitsa* and *Karna Poorana* were advocated in both the groups. Treatment protocol was designed according to *Chikitsa Sutra* (Line of treatment) given in *Sushruta Samhita* and *Ashtanga Samgraha*.

For this study total 28 patients were registered and randomly divided into two groups by simple random sampling method, among which all patients completed the treatment. The effect of treatment was observed both in subjective symptoms and objective parameters.

For the present study *Gandhakadi Taila* (3) *Karna Poorana*, *Saptanga Guggulu* (4) and *Shadabindu Taila* (5) were selected as trial drugs.

Materials and Methods

Aims and objectives:

The present study was based on following aims and objectives:

- Conceptual study of *Karna Srava* (CSOM).
- To study the etiological factors for different age groups in *Karna Srava* (CSOM).
- To evaluate the role of trial drugs in the management of *Karna Srava* (CSOM).

Inclusion criteria:

Patients attending the OPD and IPD of the department of Shalakyas of I.P.G.T. & R.A., Hospital Jamnagar, fulfilling the criteria of selection fulfilling the diagnostic criteria which are based on signs and symptoms of *Karna Srava* (CSOM) and examination were selected for present study. The special proforma

was prepared on *Ayurvedic* as well as modern guidelines.

Exclusion criteria:

- Patients aged below ten years and above seventy years were excluded.
- Patients having atticofurcal type of CSOM.
- Patients suffering from any chronic debilitating disease, with other ear pathology and cases which required surgical intervention were excluded from study.

Investigation:

Following investigations were carried out before treatment to rule out any systemic disease.

- Haemogram: - Hb., T.C, D.C, ESR,
- Bio chemical investigation: - FBS.
- Urine: - Routine & Microscopic.
- Audiometric and Otoscopic examinations for objective assessments.

This project has been cleared by Institutional Ethics Committee vide its letter No. PGT/7-A/2012-2013/1964, dated: 21/09/2012. This trial was also registered in Clinical Trial Registry of India (CTRI), ref. no REF/2013/09/005653.

GROUPING:

- Group- 1:
 - I. *Gandhakadi Taila Karna Poorana* , approx. 1ml. in ear once in the evening,
 - II. *Saptanga Guggulu*, 2 tablets each of 500mg orally thrice daily.
 - III. *Shadabindu Taila Nasya*, 6 drops in each nostril was given for 5 days before starting the treatment.
- Group- 2: Same treatment protocol was adopted as group 1 except *Nasya*.

Duration Of Treatment:

45 days. One month follow up at intervals of 15 days.

An assessment was made on symptoms and signs before and after treatment. The scoring was given to each criterion. The following criteria were made to assess effect of therapy.

(Table 1: Criteria for assessment of therapy)

No.	Criteria	Percentage
1	Complete remission	100%
2	Marked improvement	99 - 75%
3	Moderate imp.	74 - 50%
4	Mild Improvement	49 - 25%
5	Unchanged	<25%

Statistical analysis:

The information gathered on the basis of above observations was subjected to statistical analysis in terms of mean (x), standard deviation (S.D.) and standard error (S.E.). Paired 't' test was carried out at $P < 0.05$, $P < 0.01$ and $P < 0.001$ levels. The obtained results were interpreted as, Insignificant $P > 0.05$, Significant $P < 0.05$ or highly significant $P < 0.01$ or < 0.001 .

Observations and results:

In this clinical trial of total 28 patients were registered, 14 patients in each, among which all completed the treatment.

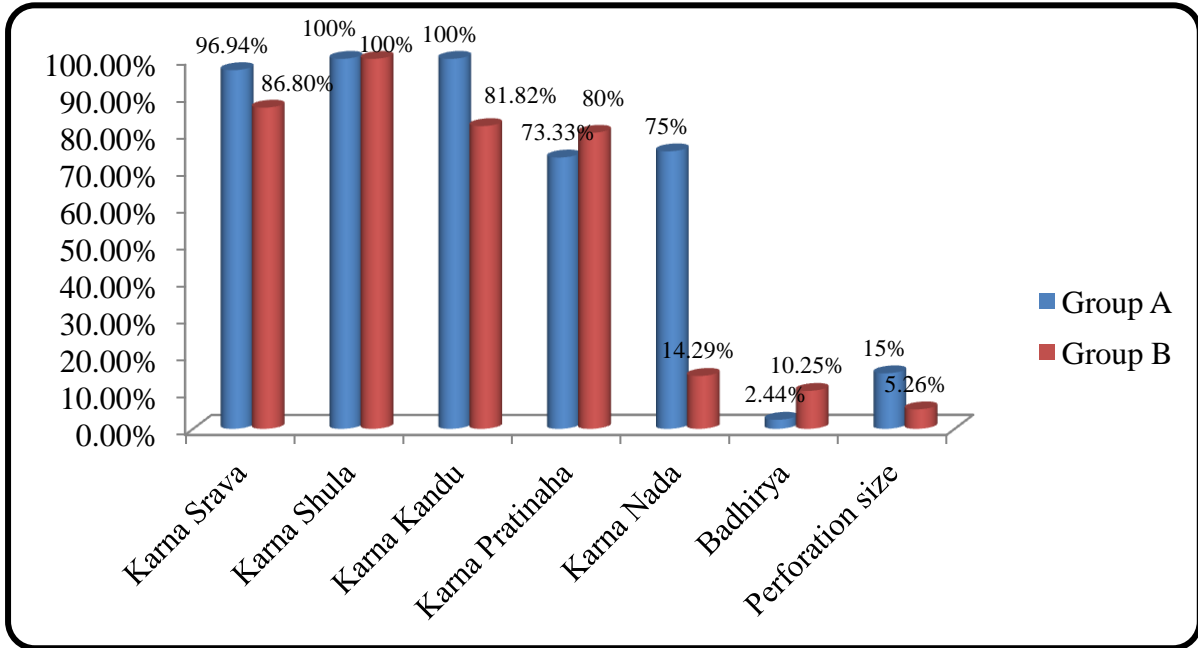
Majority of the patients 74.97 % belonged to middle class. Maximum numbers of the patients i.e. 46.11 % were from polluted surrounding of residence followed by 39.57% were from damp surroundings. Majority of the patient i.e. 60.69 % were from urban habitat followed by 14.28% from sea-cost. Maximum numbers of the patients i.e. 53.55 % were working in surrounding with direct exposure to cold and wind. Among

28 patients only one patient was having both family and surgical history positive.

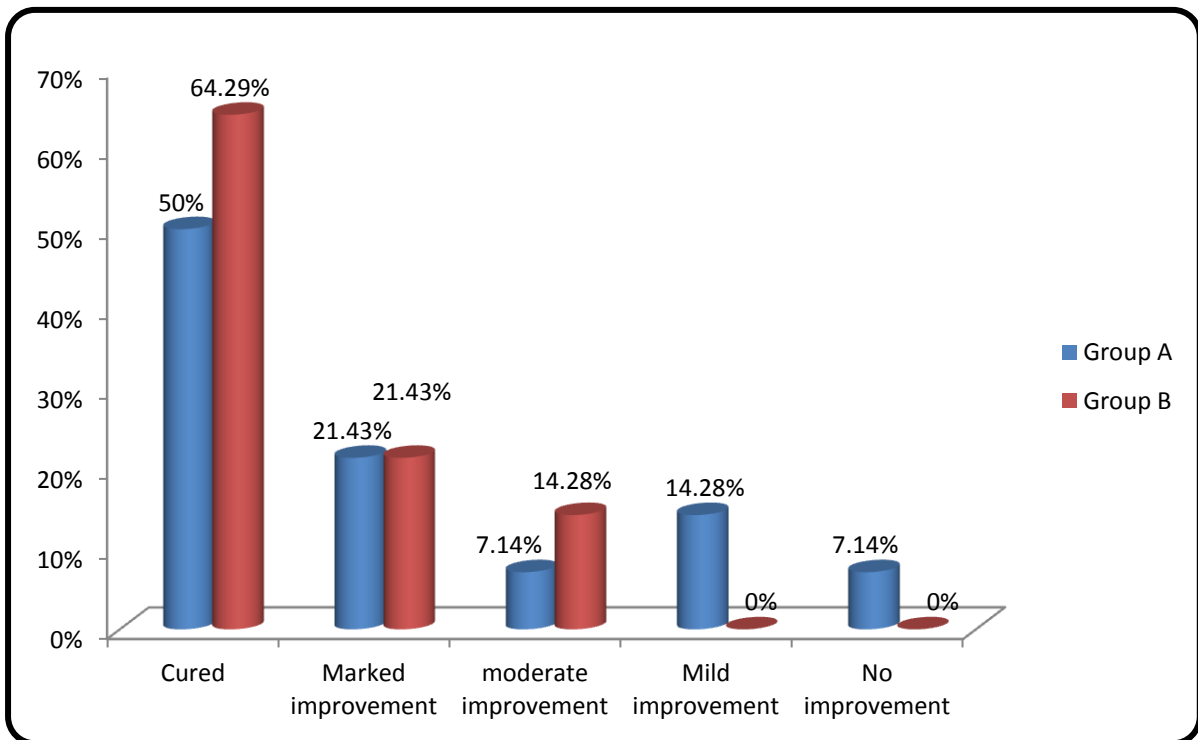
Maximum numbers of patients i.e. 100% were having CSOM as a sequel to AOM (Acute Otitis Media), *Avashyaya* (Dew) was seen in 92.82% of patients followed by *Karna Kanduyana* (Ear scratching) in 78.54% of patients, *Pratishyaya* and *Jalakrida* (Water games) were as *Nidana* (Etiological factor) in 71.4% of patients, repeated infections through ET (Eustachian tube), nasopharynx were found as *Nidana* in 57.12% of patients.

Maximum number of patients i.e. 100% had *Karna Srava*, followed by 96.38% patients were having *Badhirya* (Deafness). 89.25% of patients had *Karna Kandu* (Itching in ear), 78.54% patients had *Karna Pratinaha* (Feeling of ear blockage) and 21.42% patients had *Karna Nada* (Ringing ear/Tinnitus) as symptom. *Karna Shula* (Earache/Otalgia) was observed in 14.28% of patients.

In *Karna Srava* 96.97% relief was observed in group A and 86.86% relief was observed in group B. 100% relief was obtained in *Karna Shula* in both groups. In *Karna Kandu* 100% and 81.82% relief was observed in group A and group B respectively. In *Karna Pratinaha* accordingly 73.33% and 80% relief was gained respectively in group A and group B. In *Karna Nada* 75% and 14.29% relief was gained respectively in group A and group B. Only 2.44% and 10.25% relief was observed in tympanic membrane perforation in group A and group B respectively. In deafness 15% and 5.26% relief was observed in deafness in group A and group B respectively. Group A has better percentage wise result on all chief complains than Group B except *Karna Pratinaha*, while group B has better result in *Karna Pratinaha* than group A.



(Comparative effect of therapy on chief complains and objective criteria of Karna Srava (CSOM) (% relief, n=14))



(Assessment of therapy (n=14))

Complete relief was found in 50% and 64.29% of patient in both groups respectively. 21.43% patients got marked relief in both group. 7.14% and 14.28% patients got moderate relief respectively in group A and group B. 14.28% patients got mild relief and 7.14% patients got no relief in group A.

Discussion:

Majority of the patients 74.97 % belonged to middle class. Socio Economic Status is having direct relation with prevalence, lower groups are having high incidence (6). 14.28% patients were from sea-cost as Jamnagar area is near to sea and *Avashyaya* is said to be key factor in etiology of *Karna Srava* by our *Aacharya*. Family history was found positive in only one patient among 28 which shows that the disease has no genetic pre despondence. *Avashyaya* was seen in 92.82% of patients as Jamnagar is near to sea-cost, and patients were having habit of going out in morning for routine work or exercise, this *Nidana* is almost inescapable for most patients. *Karna Kanduyana* was observed in 78.54% of patients, *Pratishyaya* was detected as *Nidana* in 71.4% of patients as it causes tubal occlusion which is prime cause in pathogenesis of CSOM.

Maximum number of patients i.e. 100% had *Karna Srava* as it is the principal symptom of disease, followed by 96.38% patients were having *Badhirya* (i.e. conductive hearing loss for this study) as the disease affects conductive aperture. 89.25% of patients had *Karna Kanduru* which can be due to discharge present in EAC, 78.54% patients had *Karna Pratinaha* that can be because of discharge and eustechian tube blockage.

In group A statistically highly significant result was obtained in *Karna Srava and Karna Kanduru* as “p” is <0.001. On the other hand insignificant results were achieved for *Karna Shoola, Karna Pratinaha, Karna Nada* as “p” is >0.05. This is because in group A oral medicine

and *Karna Poorana* were advocated. *Karna Poorana* is a local measure which helps in reliving *Karna Srava* and *Karna Kanduru*. While *Karna Pratinaha* and *Karna Shoola* are mainly due to tubal dysfunction local and/or oral medications can not give better results in such pathology.

In group B statistically highly significant result was obtained in *Karna Srava, Karna Pratinaha* and *Karna Kanduru* as “p” is <0.001. Group B showed better results than group A in *Karna Pratinaha* because in *Nasya Karma* due to virtues of *Sthanika Abhyanga* and *Swedana* mucosal edema of eustechian tube decreases. With help of slight head low posture and little forceful inhalation drug reaches to the sinuses, middle ear (via eustechian tube) olfactory area and cranial cavity. It opens the eustechian tube which is the culprit for the disease *Karna Srava* (CSOM). On the other hand insignificant results were obtained for *Karna Shoola, Karna Nada* as “p” is >0.05.

Insignificant results were obtained for *Karna Shula* and *Karna Nada* as among 28 patients only 2 and 4 patients respectively were having complains of *Karna Shula* and *Karna Nada* and though they got relief it was not possible to evaluate results statistically. Results in objective criteria were statistically insignificant for group A and group B both. Among twenty eight patients perforation was healed in only two patients in group B and size was reduced from small to tiny in one patient in group B, as these patients were from younger age group and having good *Bala* and were having a shorter history than other patients. Appearance of pinkish margins was noted in many patients but perforation did not heal as perforation size was not tiny or small. In addition to this, avoidance of *Nidana* was not possible for them. Patients got subjective relief in deafness, but in PTA there was no change than before. Hearing threshold was improved in many patients but those changes were not

sufficient to have effect on the criteria for deafness in audiometric examination. In audiometric examinations further advancement of deafness or any sensory neural deafness was not found that shows systemic and local drugs are not having any ototoxic effects.

Probable mode of action:

All drugs in *Gandhakadi Taila* mentioned in *Karna Rogadhikara* are *Ushna Virya* and *Katu Vipaki* thus it eliminates *Kapha*. *Haridra* is having *Vrana Shodhana*, *Vrana Ropana* properties this promotes healing of tympanic membrane perforation. With help of *Laghu-Ruksha Guna* of *Hridra* and *Dhatu Kapha* is eliminated and *Ruksha* is helpful in discharging condition. *Laghu Guna* is *Lekhana* and *Vrana Ropana*, and *Varnakara* (7). *Gandhaka* and *Manahshila* are having *Rasayana* property. *Haridra* and *Sarshapa* also possess anti fungal property by this virtue fungal infection of ear which is seen due to inadequate care by patient after *Karna Poorana* or as a complication of CSOM is prevented. All drugs used are having strong insecticidal and anti bacterial activities thus help in elimination of local infection. On analytic study this formulation was found to seize high acid value (33.653) for this reason it removes squamous epithelium from margin of perforation that is the reason for permanent perforation, same principle is applied in allopathic medicine in chemical cauterization by $AgNO_3$, TCA etc.

Ingredients of *Saptanga Guggulu* mentioned in *Nadivrana Prakarana* are having *Kaphaghna*, *Vedanasthapana*, *Deepana*, *Pachana*. *Anulomana*, *Dhatu Vardhaka* hence all these help in chronic condition of like CSOM and elimination of *Pratishyaya* and *Kapha*. *Guggulu* is *Shodhana*, *Ropana* thus helps in wound healing and promotes healing of tympanic perforation. *Shoola-prashamana*, *Krimighna* properties are useful in condition of *Karna Shula* and infection.

Rasayana and *Nadi Balya* properties prevent cochlear damage due to disease. *Aamalaki*, *Pippali* and *Shunthi* are having beneficial effects on immune system so this formulation boosts immune system and repeated infections are prevented. Nearly all drugs are having anti-inflammatory, anti microbial and anti bacterial properties which is helpful in systemic eradication of disease and mucosal edema of eustachian tube which is main culprit in the disease.

Most drugs used in *Shadabindu Taila* mentioned in *Shiro Rogadhikara* are having *Tikshana*, *Ushna Virya*, *Katu Vipaki* properties this is how they work as *Kaphahara*, *Vata Anulomana*, *Shirovirechana*. *Vidanga* is said to be Useful in *Jirna Pratishyaya* and *Twaka* is *Peenasanashna* by this way this formulation helps in elimination of *Pratishyaya* which is a main factor for CSOM. This is how this drug works in complete eradication of disease. *Karkatashruni* is Anti-allergic and *Aeranda Moola* is having immunizing property by these virtues it helps in controlling allergy which is the important cause in pathogenesis of CSOM. Utmost drugs are having anti-bacterial and/or anti-inflammatory activities so *Shadabindu Taila* eradicates local and systemic infections, decreases mucosal edema of Eustachian tube and promotes proper drainage of middle ear secretions. All these *Rasayana*, *Snigdha*, *Shita*, *Madhura*, anti allergic and anti biotic properties increase the general and local immunity (Mucosal health).

In *Purva Karma* for *Karna Poorana* gentle massage is done with luke warm medicated oil around the ear and pinna. After this heat is applied around ear with towel soaked in boiling water this causes vasodilation and thus increase permeability of capillaries. Instilled medicine in ear canal gets absorbed by skin lining external auditory meatus and tympanic membrane and reaches systemic

blood flow, according to *Ayurveda* drugs gets absorbed by *Bhrajaka Pitta* present in skin and shows its effects on body and local tissue (8).

The nasal irritations due to the instilled medicines in form of *Nasya* as well as the decongestion and anti-inflammatory contents of the drug normalize the osteomeatal physiology which again helps in clearance of the secretions of paranasal sinuses thus relieves *Pratishyaya*. In this way it ultimately relieves eustachian tube blockage (root cause of CSOM)

Conclusion:

- On the basis of similarity between the etiological factors, symptoms, complications, prognosis, and treatment modalities tubotympanic type of CSOM can be correlated with *Karna Srava* and Perforation of Tympanic membrane seen in active mucosal COM can be compared with *Yapya/Krichchha Sadhya, Twaka-Mamsa Gata, Pitta-Kaphaja Dushta Vrana*.
- Both the group showed almost equal results in different symptoms. But objectively both group showed insignificant results.
- After completion of treatment audiometric findings showed no changes indicating sensory neural deafness so it can be said that trial drugs are not having ototoxic effect as seen in use of other ear drops for CSOM

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