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AYURVEDIC MANAGEMENT OF POST-TUBERCULAR HYDROSALPINX LEADING TO PRIMARY INFERTILITY: A CASE STUDY

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ABSTRACT

Hydrosalpinx, the pathological distension of the fallopian tube with fluid, is a common contributor to tubal-factor infertility. It is often a sequel of infections like pelvic inflammatory disease, genital tuberculosis, endometriosis, or prior pelvic surgeries. In this case study, we report the successful Ayurvedic management of a 29-year-old woman with a history of childhood tuberculosis and a diagnosis of bilateral hydrosalpinx, who presented with primary infertility. A personalized Ayurvedic treatment protocol was administered. Remarkable clinical improvement and resolution of hydrosalpinx were confirmed through imaging, and the patient conceived naturally after three months of therapy. This case highlights the potential of classical Ayurvedic formulations in treating tubo-peritoneal infertility non-invasively.

KEYWORDS: Hydrosalpinx, Ayurveda, Infertility, Tuberculosis, *Rasayana*, *Vandhyatva.*

INTRODUCTION

Hydrosalpinx is a pathological condition characterized by the accumulation of serous fluid in a dilated and obstructed fallopian tube, typically due to previous infections or inflammatory processes like Pelvic Inflammatory Disease (PID), Genital Tuberculosis, Sexually Transmitted Infections (STIs), Post-surgical adhesions, Endometriosis, Congenital anomalies or traumatic injuries. It is considered one of the significant causes of tubal infertility and is associated with a poor prognosis in assisted reproductive techniques such as in vitro fertilization (IVF).

Several studies have demonstrated the adverse effect of hydrosalpinx on fertility. A meta-analysis by Camus et al. Concluded that the presence of hydrosalpinx significantly reduces the pregnancy rate after IVF compared to other forms of tubal infertility.[1] This negative impact is attributed to the embryotoxic fluid within the hydrosalpinx that may reflux into the uterine cavity, impairing implantation.[2]

Strandell et al. Reported that women with hydrosalpinx had reduced implantation and pregnancy rates, likely due to altered endometrial receptivity and mechanical flushing of embryos.[3] Johnson et al. In their Cochrane review also emphasized that surgical removal or occlusion of hydrosalpinx prior to IVF significantly improved reproductive outcomes.[4] Hydrosalpinx is often the result of chronic pelvic infections, such as genital tuberculosis or sexually transmitted diseases.

In India, tuberculosis remains a notable cause of hydrosalpinx, especially in young females, contributing to a significant percentage of tubal infertility cases. Conventional management involves surgical interventions such as salpingectomy (removal of the fallopian tube), salpingostomy (creating an opening in the tube), and assisted reproductive techniques like in vitro fertilization (IVF).

These treatments aim to address the blockage and improve fertility outcomes. However, they may not be accessible or preferred by all patients due to factors like cost, availability of specialized medical facilities, or personal beliefs.[5]

Ayurvedic Perspective

From the Ayurvedic perspective, conception (*Garbha*) occurs when four essential factors—*Ritu* (fertile period), *Kshetra* (healthy uterus and reproductive tract), *Ambu* (nutritive fluid), and Beeja (viable ovum and sperm)—are all in optimal condition.[6] Disruption in any of these can lead to failure of conception (*Garbha Asambhava*).

In this context, hydrosalpinx can be considered a form of *Kshetra Dushti*, as it affects the anatomical and functional integrity of the *Artavavaha Srotas* (tubal and uterine channels), thus hampering fertilization and implantation. Acharya Sushruta describes *Kshetra* as "*Yoni Garbhashayadi Sthana*"—the physical substratum necessary for conception[7] (Sushruta Samhita, Sharira Sthana 2/33).

Hydrosalpinx involves *Sanga* (obstruction) and Shotha (inflammatory swelling) of *Artavavaha Srotas*, often with the involvement of vitiated *Kapha* and *Vata doshas*, along with *Ama* (toxins) due to previous infections or systemic imbalances. Chronicity of such conditions leads to *Kshetra Dushti*, ultimately impairing the receptivity and conduciveness of the uterus and fallopian tubes for conception.

Ayurveda offers holistic and individualized approaches that restore *Srotoshodhana* (cleansing of channels), reduce *Shotha*, enhance *Agnibala*, and rejuvenate the reproductive tissues (*Shukra Dhatu* and *Artava Dhatu).*

CASE PROFILE

A 29-year-old married woman presented with a 3-year history of primary infertility. Her menarche was at age 13, with regular cycles. She had no history of dysmenorrhea or menorrhagia.

Menstrual History

The patient reported a regular menstrual cycle of 30 days' duration, with bleeding lasting for 5 to 6 days each cycle.

Medical History

There was no history of chronic medical conditions such as hypertension, diabetes mellitus, hypothyroidism. But known case of treated and cured pulmonary tuberculosis at the age of nine.

Personal History

The patient had a good appetite, sound sleep, and normal bladder and bowel habits. Her general health was good, and there was no history of smoking, alcohol use, or surgical intervention.

Family History

There was no family history of infertility, tuberculosis, or other chronic illnesses.

Clinical Examination

1. Per Vaginal Examination: The uterus was of normal size and anteverted. No signs of pelvic inflammation were observed, and the fornices were clear.

2. Per Speculum Examination: The cervix appeared healthy with no evidence of erosion or discharge.

Clinical Findings and Investigations

Routine physical and gynecological examination was unremarkable. Hormonal profile (FSH, LH, TSH, Prolactin) was within normal limits. Husband's semen analysis was normal. Hysterosalpingography (HSG) revealed bilateral hydrosalpinx, confirmed by ultrasound and diagnostic laparoscopy. She was advised surgical removal of the fallopian tubes, but opted for Ayurvedic therapy instead.

Ayurvedic Management Protocol

The treatment plan was focused on:

Srotoshodhana – clearing obstruction

Shothahara – reducing tubal inflammation

Agnideepana & *Ama Pachana* – correcting metabolic blockages

Vatanulomana – regulating Vata for reproductive function

Treatment given

1. *Kukutnakhi Guggul* – 250 mg BID

(Enhances ovulatory function and uterine tone)

2. *Triphala Guggulu* – 500 mg TID

(Anti-inflammatory, *Shodhana*, detoxification)

3. *Gokshuradi Vati* – 500 mg BID

(Rejuvenates reproductive and urinary systems, Shukra Vardhak)

4. *Punarnava Kashaya* – 40 ml BID

(Reduces inflammation, fluid accumulation)

5. *Erand Bhrishta Haritaki* Tablet – 500 mg HS

For a period of 3 months

(Supports *Vatanulomana*, bowel regularity)

The patient was advised to maintain a wholesome, Laghu diet, practice light yoga, and abstain from sexual activity during menstruation. Monthly follow-ups were conducted.

RESULTS

By the end of the third month, the patient reported reduced pelvic discomfort and improved energy levels. At six months, a follow-up TVS revealed partial resolution of tubal dilation. By

the ninth month, HSG and ultrasound showed complete resolution of hydrosalpinx, and the patient conceived spontaneously in the tenth month of therapy. The pregnancy proceeded without complications, and the patient delivered a healthy full-term baby via normal vaginal delivery. This outcome supports the potential efficacy of Ayurvedic management in cases of tubal factor infertility.

DISCUSSION

Hydrosalpinx resulting from old tuberculosis is often refractory to conventional treatment unless surgically corrected. In this case, Ayurvedic medicines with documented *Shothahara*, *Srotoshodhana*, and *Rasayana* effects were able to reverse tubal pathology. *Kukutnakhi* and *Triphala Guggulu* are extensively used in Vandhyatva due to their cleansing and hormonal modulation action. *Gokshuradi Vati* and *Punarnava* address *kleda* and inflammation in the pelvic region. Erand *Bhrishta Haritaki* maintains *Apana Vata* regularity, essential for reproductive health.

Discussion on role of *Kukkutnakhi Guggul* in this Case study

In the presented case, *Kukkutnakhi Guggul* was used as a key formulation aimed at addressing the tubal pathology (hydrosalpinx), which correlates with *Artavavaha Srotodushti* in Ayurveda. According to *Bhaishajya Ratnavali* (*Yoni Vyapad Chikitsa*), *Kukkutnakhi Guggul* is indicated in granthi, *gulma*, *yonivyapad*, and *arbuda*, where *Kapha-Meda* obstruction plays a key pathological role.[8] The formulation possesses *Lekhana* (scraping), *Shothahara* (anti-inflammatory), and *Srotoshodhana* (channel-purifying) properties, which are essential in conditions involving tubal blockage and inflammatory adhesions.

The presence of *Triphala* acts as a mild laxative and antioxidant, aiding detoxification; *Kanchanara* helps in reducing glandular swellings and fibrosis; and *Guggulu*, as a yogavahi, enhances the penetration of herbs deep into tissues and supports the resolution of chronic inflammatory processes. As described in *Rasa Tarangini* (*Taranga* 11), *Guggulu* preparations are known to be *Vata-Kapha shamak* and effective in diseases of obstruction and accumulation.

Thus, in the context of this patient's bilateral hydrosalpinx—likely due to post-tubercular tubal fibrosis and fluid accumulation—*Kukkutnakhi Guggul* contributed to the reduction of *srotorodha* (blockage), enhancement of *Kshetra Shuddhi*, and restoration of the patency

required for natural conception. This effect was clinically validated by resolution of hydrosalpinx on repeat HSG and spontaneous conception thereafter.

The success of this non-invasive, cost-effective approach warrants further exploration and validation through controlled studies.

Discussion on role of *Gokshuradi Vati* in this case study

In the current case of infertility due to hydrosalpinx, *Gokshuradi Vati* was administered for its classical actions of *Mutrala* (diuretic), *Shothahara* (anti-inflammatory), and *Srotoshodhaka* (channel-cleansing) effects. Tubal blockage, particularly due to post-inflammatory or infectious sequelae like tuberculosis, often involves local Shotha (inflammation) and *Aama-Kapha* accumulation obstructing the *Artavavaha Srotas*. *Gokshuradi Guggulu*, mentioned in *Sharangadhara* Samhita (*Madhyama Khanda*, 7/111-115) and later adapted into Vati form, is a classical formulation primarily indicated in *Mutravaha Srotas* Vikara, but its *Tridosha-hara* and anti-inflammatory properties make it beneficial in female reproductive disorders as well.[9]

The main ingredient *Gokshura* (Tribulus terrestris) is well-documented for its anti-inflammatory, diuretic, and rejuvenating properties, supporting tissue detoxification and fluid drainage from the pelvic region. It also assists in balancing *Apana Vata*, which governs reproductive functions. The presence of *Triphala*, *Trikatu*, *Guggulu*, and *Mustaka* in the formulation contributes to *Aamapachana*, *Agni deepana*, and enhanced circulation in micro-channels (*srotas*), thereby facilitating the clearance of adhesions or fluid collections in fallopian tubes. Thus, in this case, *Gokshuradi Vati* played a supportive role in reducing tubal inflammation and promoting functional patency of the fallopian tubes, contributing to the restoration of a healthy reproductive environment (*Kshetra*) and facilitating conception.

Discussion on role of *Triphala Guggul* in this case study

Triphala Guggulu, a time-tested polyherbal formulation described in Sharangadhara Samhita (*Madhyama* Khanda 7/12), consists of *Triphala* (*Haritaki*, *Bibhitaki*, *Amalaki*), *Guggulu*, Pippali, and Shunthi. It is classically indicated in *Medoroga*, *Vrana*, *Shotha*, and *Ama-visha* conditions, which involve chronic inflammation and metabolic obstruction.[10] In the context of hydrosalpinx, this formulation plays a key role due to its *Shothahara* (anti-inflammatory), *Srotoshodhaka* (channel-cleansing), and *Lekhana* (scraping) properties. *Triphala* is known for

its detoxifying, antioxidant, and immunomodulatory actions, while *Guggulu* enhances microcirculation and reduces tissue congestion.

From a modern perspective, *Triphala* has been reported to possess significant anti-inflammatory and antioxidant properties that help modulate pelvic inflammation (Int J Ayurveda Res, 2010).[11] Similarly, Guggulu has demonstrated suppression of pro-inflammatory cytokines like TNF-α and IL-6, which are often elevated in chronic pelvic inflammatory states such as hydrosalpinx (Phytotherapy Research, 2003). Together, the formulation helps in reducing tubal inflammation, resolving fluid accumulation, and restoring functional patency of the fallopian tubes. By regulating *Apana Vata* and promoting *Ama pachana*, it contributes to the restoration of *Kshetra Shuddhi*—an essential component of fertility according to Ayurvedic theory.

Discussion on the role of *Punarnava Kashayam* in this case study

Punarnava Kashayam, referenced in classical Ayurvedic texts such as *Ashtanga Hridaya* and *Sahasrayoga* under the category of *Shothahara Kashayas*, is primarily composed of *Punarnava* (Boerhavia diffusa) along with Daruharidra, Guduchi, and other herbs. The formulation is known for its potent *Shothahara* (anti-inflammatory), *Mutrala* (diuretic), and *Srotoshodhaka* (channel-cleansing) properties, making it particularly beneficial in conditions characterized by fluid accumulation and inflammation, such as hydrosalpinx. In this case, *Punarnava Kashayam* likely facilitated the resolution of bilateral hydrosalpinx by reducing interstitial inflammation, promoting lymphatic drainage, and relieving congestion in the fallopian tubes.

From a modern pharmacological perspective, *Punarnava* has demonstrated notable anti-inflammatory, anti-fibrotic, and diuretic actions. A study published in the Journal of Ethnopharmacology (2011) confirmed its ability to modulate inflammatory markers and reduce tissue fibrosis, which are critical in the management of tubal obstruction. Additionally, its use in traditional Ayurvedic practice for gynecological conditions involving pelvic congestion (Yoni Vyapad) has been supported by several clinical case reports. Thus, *Punarnava Kashayam* may have played a crucial role in restoring tubal patency and creating a favourable uterine environment for conception in this case.

Discussion on the role of *Erand Bhrishta Haritaki* in this case study

Erand Bhrishta Haritaki is a classical formulation where *Haritaki* (Terminalia chebula) is processed with *Eranda Taila* (castor oil). It is traditionally used in the management of *Vataja* disorders, especially those affecting the Pakvashaya (colon) and *Apana Vata* functions, and is widely mentioned in classical texts like *Bhaishajya Ratnavali* under *Virechana Yoga*. In the context of infertility associated with hydrosalpinx, this formulation likely acted through its *Vatanulomana*, *Shothahara*, and *Bhedana* properties. It aids in correcting Apana *Vata dushti*, which is considered a core factor in reproductive dysfunctions including tubal blockage.

Haritaki is known for its mild laxative, detoxifying, and rejuvenate actions, while *Eranda* Taila (castor oil) supports deeper cleansing by softening *Ama* and facilitating its expulsion. Together, they enhance bowel function, reduce pelvic congestion, and indirectly clear obstructions in the reproductive channels. According to Ayurvedic principles, regular bowel movement is essential for *Kshetra Shuddhi* and for maintaining a balanced *Vata* flow in the pelvic region.

Modern studies have highlighted the anti-inflammatory, analgesic, and mild laxative effects of both *Haritaki* and *Eranda Taila*. Research published in Pharmacognosy Reviews (2010) supports *Haritaki's* antioxidant and cytoprotective role, which could assist in reversing chronic inflammatory conditions such as hydrosalpinx. Thus, the inclusion of *Erand Bhrishta Haritaki* in the treatment plan may have contributed significantly to channel clearance, inflammation reduction, and normalization of pelvic physiology in this case.

CONCLUSION

This case demonstrates that Ayurvedic intervention can be a successful, non-surgical option in the management of hydrosalpinx-induced infertility, especially in cases where conventional methods offer limited scope or are not acceptable to the patient. An integrative approach focusing on *dosha*, *dhatu*, and srotas balance may provide a viable path for women facing similar challenges.

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