IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Ascites Unplugged: Integrating Ayurvedic Concepts & Modern Paracentesis Protocols

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Abstract: **Introduction:** Ascites, the pathological accumulation of fluid in the peritoneal cavity, often results from conditions like liver cirrhosis, malignancy, or heart failure. Modern medicine employs paracentesis as both a diagnostic and therapeutic intervention. Ayurveda, rooted in the concept of *Jalodara*, views ascites as a manifestation of *Udakavaha Srotas Dushti*, characterized by systemic imbalance.

Methods: This review synthesizes procedural insights from modern paracentesis techniques and correlates them with Ayurvedic understandings from classical texts such as *Charaka Samhita*, *Sushruta Samhita* and *Ashtanga Hridaya*. The surgical intervention *Vyadhana Karma* and internal therapies like *Basti*, *Lepa* and *Virechana* are examined for integrative potential.

Results: While paracentesis ensures prompt fluid removal and diagnostic clarity, Ayurvedic modalities aim to address root imbalances and prevent recurrence by correcting metabolic dysfunction.

Discussion: An integrative approach leveraging both systems could offer enhanced therapeutic outcomes, combining immediate relief with systemic balance. Interdisciplinary collaboration and clinical trials are essential for the evolution of such a model.

Index Terms **- Component, formatting, style, styling, insert.**

I. INTRODUCTION

Paracentesis, also referred to as ascitic tap, is a procedure in which a needle or catheter is inserted into the peritoneal cavity to obtain ascitic fluid for diagnostic or therapeutic purposes[1]. This procedure is vital for evaluating the cause of ascites, identifying infections like spontaneous bacterial peritonitis (SBP), and relieving abdominal discomfort due to fluid accumulation.

In Ayurveda, *Udara Roga* is classified among the *Ashta Mahagada* (eight grave diseases) due to its severity and therapeutic challenges. It encompasses eight subtypes, of which *Jalodara* (ascites) is prominent, also known as *Udakodara* or *Dakodara*[2]. Pathogenesis involves vitiation of *Vata* and *Kapha*, impaired *Agni*, and obstruction of *Swedavaha* and *Udakavaha Srotas*[3], resulting in fluid accumulation within the abdominal cavity and progressive distension, comparable to ascites in contemporary medicine.

II. OBJECTIVES OF THIS REVIEW

This review aims to enhance the **knowledge, skills, and attitudes** of Ayurvedic practitioners in the management of *Jalodara* (ascites), integrating traditional wisdom with modern clinical practice. It emphasizes both the safe execution of procedures and thoughtful planning for long-term management. The objectives are:

- To understand the **indications, contraindications, and complications** of paracentesis, along with interpretation of ascitic fluid analysis and SAAG values.
- To comprehend the **Ayurvedic pathology of *Jalodara***, with emphasis on *Dosha* vitiation and *Udakavaha Srotas Dushti*.

- To develop the skill of performing **safe and sterile paracentesis**, utilizing ultrasound guidance when available.
- To integrate **Ayurvedic therapeutic measures** such as *Virechana*, *Basti*, and *Deepana-Pachana* for systemic correction and recurrence prevention.
- To appreciate the **safety, precision, and diagnostic clarity** offered by modern techniques.
- To recognize the **value of ancient Ayurvedic wisdom** in addressing root causes and enhancing long-term outcomes.
- To promote an **integrative, patient-centered approach** that combines biomedical standards with holistic Ayurvedic principles without compromising safety.

III. INDICATIONS & CONTRAINDICATIONS:

Modern View:

- **Indications:** Diagnostic assessment (e.g., SBP, new-onset ascites), large-volume fluid removal.
- **Contraindications:** Coagulopathy, localized infections, distended bladder, or intra-abdominal adhesions.

Ayurvedic View:

In *Jalodara*, paracentesis is a last resort. First-line management involves[4]:

- *Nitya Virechana* (daily purgation) to relieve systemic congestion.
- *Basti Karma* (medicated enemas) to balance *Vata* and support fluid elimination.
- *Deepana-Pachana* herbs (e.g., *Trikatu*, *Pippali*) are used to stimulate digestive fire (*Agni*) and prevent fluid buildup.

IV. STAGING OF *JALODARA* (ASCITES):

Modern Perspective:

Ascites is classified into three grades[5]:

- **Grade 1 (Mild):** detectable only on imaging (USG/CT).
- **Grade 2 (Moderate):** evident on clinical examination with flank bulging and shifting dullness.
- **Grade 3 (Severe):** grossly visible with positive fluid wave or thrill.

Ayurvedic Perspective:

Ayurveda describes three *Avasthas*[6]:

- ***Ajatodaka* (Early Stage):** marked by reddish abdominal discoloration, gurgling sounds, and venous prominence without fluid accumulation.
- ***Picchavastha* (Intermediate Stage):** with initial serous fluid collection.
- ***Jatodaka* (Established *Jalodara*):** characterized by generalized distension, shiny skin, engorged veins, and positive fluid thrill or shifting dullness.

Both systems outline a progressive continuum of disease, with modern grading emphasizing diagnostic tools and Ayurveda highlighting clinical and *Doshic* changes.

V. PROCEDURE OVERVIEW:

Aspect	Ayurvedic - *Vyadhana Karma*[7]	Modern Protocol[8]
***Purvakarma* (Pre-procedure)**	a. ***Snehana*:** Patient anointed with *Vata-Shamaka Taila.* b. ***Swedana***: Fomentation with hot water. c. Attendants support patient at ***Kaksha* (axillae)**.	a. Informed consent obtained. b. Bladder emptied. c. Ultrasound-guided site marking. d. Aseptic skin preparation and local anaesthesia.
***Vyadhanasthana* (Site of puncture)**	a. Left side of *Udara*, below *Nabhi* (umbilicus). b. Four *Angula* lateral to ***Romavali*** (midline hairline). c. Depth: one *Angula*.	a. Commonly in **left lower quadrant**, 2–3 cm above and medial to anterior superior iliac spine (US-guided).
***Yantra / Shastra* (Instrument)**	a. ***Vrihimukha Shastra*** (lancet-shaped). b. Insertion of ***Nalika*** (tube/quill) for controlled drainage.	a. Disposable paracentesis catheter with trocar or cannula.
***Shoshana Vidhi* (Drainage method)**	a. Gradual drainage through *Nalika*. b. Entire fluid (*Doshodaka*) not removed at once.	a. Controlled removal via vacuum bottles or drainage bag. b. Large-volume paracentesis with albumin infusion if >5L removed.
***Avashyaka Pratisedha* (Precautions)**	a. Prohibits complete drainage at once (risk of *Trsna, Jvara, Shula, Atisara, Shvasa, Pada-daha*). b. Repeated *Shoshana* at intervals of 3, 4, 5, 6, 8, 10, 12, or 16 days depending on *Bala* of patient.	a. Monitor for hypotension, renal dysfunction, infection, or bleeding. b. Albumin given to prevent paracentesis-induced circulatory dysfunction.
***Paschat Karma* (Post-procedure care)**	a. Puncture site anointed with *Sneha* + *Saindhava lavaṇa*. b. Bandaging as per ***Vrana-bandhana vidhi***. c. *Udara* tightly bound with ***Patta*** (flannel/silk/leather strip) to prevent ***Anila-vrddhi*** (flatulent distention).	a. Apply sterile dressing at puncture site. b. Monitor vitals. c. Advise salt restriction and diuretics.
***Ahara* (Dietary regimen)**	a. **First 6 months**: *Kshira* (milk) + *Jangala mamsa rasa*.	a. Low-sodium diet. b. Adequate protein intake.

	b. **Next 3 months**: Diluted *Kshira* or *Jangala mamsa rasa* with *Amla rasa dravya*. c. **Next 3 months**: *Laghu, Pathya ahara*. d. Long-term: use of *Kshira* and *Jangala rasa*.	c. Fluid restriction.
***Anupravrtti* (Follow-up)**	a. *Shoshana* repeated at intervals (3–16 days). b. Regular monitoring of ***Udara-parimana***, digestion, *Bala*. c. Maintain ***Patta-bandhana*** for prevention of re-accumulation.	a. Regular ultrasound to monitor fluid re-accumulation. b. Follow-up for liver disease management.

VI. LABORATORY ANALYSIS:

- **Albumin & Protein:** Determine exudative vs transudative ascites.
- **Cell Count & Culture:** Rule out infection.
- **SAAG** (Serum-Ascitic Albumin Gradient):
  ⩾1.1 g/dL suggests portal hypertension.
  <1.1 g/dL suggests malignancy or TB.

Ayurvedic Correlation:

Rasa Dhatu Dushti and *Agni Mandya* (impaired digestion/metabolism) are foundational contributors to *Jalodara*. Hence, correction of *Agni* is parallel to identifying and treating underlying pathophysiology in biomedicine.

VII. POST-PROCEDURAL CONSIDERATIONS:

Modern Supportive Care:

- Monitor for post-paracentesis circulatory dysfunction, especially after removing >5L fluid.
- Albumin infusion may prevent hypotension.
- Persistent leakage may require pressure dressing or minor surgical intervention.

Ayurvedic Supportive Care:

- *Mridu Virechana* or *Lepa* to reduce swelling.
- *Laghu Ahara* (light diet) like *Yavagu* (gruel) and *Mudga Yusha* (green gram soup) post-tap to maintain digestive strength.
- *Shamana Dravyas*: *Guggulu*, *Punarnava*, and *Triphala* are used to reduce fluid retention and inflammation.

VIII. INTEGRATIVE CONCLUSION:

The classical Ayurvedic description of *Vyadhana Karma* for *Jalodara* (ascites) reveals remarkable parallels with modern paracentesis. *Acharya Sushrutha* emphasized staged removal of fluid, strict precautions against complete evacuation, abdominal binding to prevent re-distention, and long-term dietary regulation—principles that correspond closely with present concerns regarding paracentesis-induced circulatory dysfunction, aseptic care, and nutritional rehabilitation. The prescribed use of *Kshira* (milk) and *Jangala mamsa rasa* as *pathya* diet not only supports digestion and strength but also aligns with modern recommendations for adequate protein intake in ascitic patients.

Follow-up in Ayurveda, with interval tapping, monitoring of symptoms, and diet progression, mirrors current protocols of ultrasound surveillance, renal function monitoring, and repeat drainage based on clinical need. Thus, *Acharya Sushrutha* already anticipated many safeties and supportive measures later validated in biomedical practice. With further systematic research, integration of *Ayurvedic* preconditioning (*Snehana*, *Swedana*), post-procedure bandaging, and dietetic guidelines with modern ultrasound guidance, aseptic technique, and albumin supplementation may offer a comprehensive, patient-centered model for ascites (*Jalodara*) management.

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