Indian J. Applied & Pure Bio. Vol. 41(3), 2041-2047 (2026). **ISSN: 0970-2091**

Integrative Preoperative Optimization in Decompensated Cirrhosis: An Evidence-Based Case Report & Clinical Review

[1*]Nikhil Girase and [2]Parikshit Shirode

[1,2]Department of Shalya Tantra, Parul University, Parul Institute of Ayurveda, Limda, Vadodara - 391760 (India)
*Corresponding Author: Dr. Nikhil Girase
Email: dr.nikhilgirase06@gmail.com

Abstract

Cirrhosis complicated by portal hypertension and ascites significantly elevates morbidity and mortality during elective abdominal wall hernia repair. Managing secondary abdominal wall defects requires pre-procedural resolution of fluid accumulation.

A 55-year-old male presented with a 1-year history of periumbilical swelling and discomfort. Imaging confirmed hepatic cirrhosis, portal hypertension, mild ascites, and a 4.3 mm reducible umbilical hernia. He was treated with a 1-year structured Ayurvedic protocol (including Picrorhiza kurroa, Phyllanthus niruri/urinaria, and compound metabolic formulations) targeting cellular hepatoprotection, diuresis (*Mutrala*), and purgation (*Pitta Virechana*).

The protocol resulted in complete resolution of ascites, preservation of hepatic synthetic markers, reduction of total bilirubin from 3.10 mg/dL to 1.46 mg/dL, and successful surgical clearance for elective hernioplasty without procedural complications.

Integrative conservative therapy serves as a valuable adjunct bridge to elective surgery in cirrhotic patients with low-volume ascites, mitigating surgical and anesthetic risks.

Key words : Ascites, *Jalodara*, Liver Cirrhosis, *Picrorhiza kurroa*, Preoperative Optimization, Umbilical Hernia, *Yakrutodara*.

Clinical Background

Liver cirrhosis represents end-stage hepatic fibrosis, characterized by architectural distortion, regenerative parenchymal nodules, and elevated portal venous pressures[1,6]. The management of cirrhosis, especially when accompanied by ascites, is extremely expensive

[1]Final Year P.G. Scholar, [2]Professor

for global healthcare systems and carries high morbidity and healthcare utilization[1,6,12]. Excessive alcohol consumption remains a primary etiology worldwide, initiating as hepatic steatosis and progressing via chronic necro-inflammatory pathways to irreversible architectural remodeling[1,4].

Clinical hallmarks of advanced cirrhosis include jaundice, transudative peritoneal fluid accumulation (ascites), profound asthenia, coagulopathy, and hepatic encephalopathy[1,6]. Umbilical hernias develop in up to 20% of patients with cirrhosis complicated by ascites, where elevated intra-abdominal pressure continuously stretches and weakens the thinned linea alba and umbilical fascial ring[5].

Emergency surgical repair in decompensated cirrhosis carries an alarming postoperative mortality rate of 20% to 30%, driven by massive intraperitoneal fluid shifts, abdominal wall dehiscence, refractory ascitic fluid fistulization (Flood syndrome), and acute-on-chronic liver failure[6]. While orthotopic liver transplantation is definitive, it is limited by organ donor shortages, immunological risks, and prohibitive economic costs, particularly across low- and middle-income healthcare ecosystems such as India[3,6]. Consequently, surgical guidelines recommend that elective hernia repair be deferred until ascites is completely controlled and hepatic reserve optimized using multimodal conservative frameworks, including traditional Ayurvedic interventions[12].

Case Presentation :

Patient Information & Clinical Presentation:

A 55-year-old male presented to the Shalya Tantra outpatient department with a 1-year history of periumbilical discomfort and a visible swelling. The patient led a socially, intellectually, and physically active life but reported a 5- to 6-year history of regular alcohol consumption and tobacco smoking. His surgical history was notable for an elective excision of an encysted hydrocele of an indirect inguinal hernial sac on January 5, 2023.

Diagnostic Assessment & Physical Examination :

Physical examination revealed a soft, tender, reducible mass measuring 4.3 mm at the umbilicus, with palpable hepatomegaly extending 1 fingerbreadth below the right costal margin. There were no clinical signs of incarceration, strangulation, skin erosion, or fluid weeping.

Abdominal ultrasonography demonstrated coarsened hepatic parenchymal echotexture, portal vein dilatation, mild splenomegaly, and mild free intraperitoneal fluid (ascites). The patient was diagnosed with decompensated alcoholic liver cirrhosis complicated by portal hypertension, mild ascites, and an uncomplicated reducible umbilical hernia.

Timeline of Clinical Episodes & Key Interventions :

In compliance with CARE case report guidelines, the chronological sequence of historical events, baseline diagnostic entry, midpoint response, and definitive preoperative clearance is outlined below:

Date/Milestone Clinical	Episode & Manifestation	Diagnostic Findings & Therapeutic Action
January 5, 2023 (Surgical History)	Prior surgical intervention	Excision of right-sided encysted hydrocele of indirect inguinal hernial sac; uncomplicated recovery.
July 20, 2023 (Baseline Entry)	Initial hospital presentation (Parul Ayurveda Hospital)	Periumbilical bulge (4.3 mm) & ascites identified. Baseline LFTs: Total Bilirubin 3.10 mg/dL, SGPT 26.57 IU/L, SGOT 47.74 IU/L. Ayurvedic protocol initiated.
January 10, 2024 (Midpoint Follow-up)	Ongoing conservative outpatient therapy (6 Months)	Ultrasonography reveals resolving ascites. LFTs: Total Bilirubin 1.59 mg/dL, SGPT 30.90 IU/L, SGOT 61.88 IU/L. Protocol continued.
July 31, 2024 (Preoperative Clearance)	Final assessment (12 Months post-intervention)	Complete resolution of ascites; stable umbilical defect (4.3 mm). LFTs: Total Bilirubin 1.46 mg/dL, SGOT 33.59 IU/L. Patient declared fit for elective hernioplasty .

Ayurvedic Pathophysiological Classification (Samprapti Ghataka) :

In accordance with classical Ayurvedic diagnostic doctrine for *Udara Roga* (specifically *Yakrutodara* and *Jalodara*) in Charaka Samhita Chikitsa Sthana (13/9–11)[2], the pathological stratification was characterized as follows:

***Dosha* Predominance**	*Vata* and *Pitta* Pradhana (*Tridoshaja* involvement)[2,12]
***Dushya* (Affected Tissues)**	*Rasa* (plasma/lymph), *Rakta* (blood elements), Purisha (feces)[1,2]
***Srotas* (Channels Involved)**	*Rasavaha*, *Raktavaha, Udakavaha, Annavaha, Purishavaha*[12]
***Sroto-Dushti* (Pathology Type)**	*Sanga* (microchannel obstruction) and *Vimargagamana* (extravasation)[3]
***Agni* (Digestive/Metabolic Fire)**	*Jatharagnimandya* (primary digestion) & *Dhatvagnimandya* (cellular metabolism)[3]
***Ama* Status**	*Jatharagnijanya* and *Dhatvagnijanya* (metabolic endotoxins)[2]
***Adhisthana* (Disease Seat)**	Yakra (liver), Pliha (spleen), and *Koshthanga* (peritoneal cavity)[12]

Therapeutic Intervention :

A 1-year multimodal Ayurvedic protocol was instituted, targeting cellular hepatocyte regeneration, stimulation of bile excretion, metabolic detoxification, and diuresis without inducing azotemia.

Intervention / Formulation	Dosage & Timing	Therapeutic Rationale & Classical Action
Tab. Liv 52 DS	1 tab BD after food (Initial 45 days)	Hepatoprotective and membrane stabilization[4,10]
Bhumyamalaki Churna (Phyllanthus niruri)	½ tsp BD after meals (Post-45 days)	Diuresis (Mutrala) & anti-inflammatory hepatoprotection[4,7]
Katuki+Patolpatra Churna	1 tsp BD after meals	Pitta Virechana, choleretic, anti-fibrotic[4]
Mustadi Pramathya + Triphala Churna	15 mL BD	Srotoshodhana, metabolic detox, digestive fire
Tab. Arogyavardhini Vati	2 tablets BD after meals	Deepana, Pachana, hepatic microchannel clearing[9,10]
Tab. Rasayan Vati	2 tablets BD after meals	Tissue regeneration (Rasayana) and strength[3]
Tab. Gomutra Haritaki	2 tablets at bedtime (HS)	Gentle purgation (Virechana), fluid mobilization[12]

Additionally, the patient consumed freshly expressed Carica papaya leaf juice (Papaya Patra Swarasa) combined with Piper nigrum (Krushna Maricha) each morning as an adjuvant antioxidant and bio-enhancer[4].

Clinical Outcomes & Longitudinal Lft Monitoring :

Over 12 months of outpatient therapy, the patient achieved marked clinical stabilization. Serial ultrasonography confirmed complete resolution of free peritoneal fluid, while the umbilical hernia remained stable (4.3 mm) without enlargement or incarceration. Liver function panels demonstrated normalization across key parameters.

Date	S. Bilirubin (mg/dL)	SGPT/ALT (IU/L)	Alk. Phosphatase (IU/L)	SGOT/ AST (IU/L)	Total Protein (g/dL)
20/07/2023	3.10	26.57	71.59	47.74	6.00
31/07/2023	3.00	38.90	103.20	67.10	6.90
09/08/2023	3.00	53.00	81.20	63.60	6.20
23/08/2023	2.50	37.10	114.70	58.30	6.10

06/09/2023	3.40	42.40	88.70	81.30	6.40
04/10/2023	2.37	37.13	103.10	61.88	5.77
29/11/2023	3.02	31.82	111.40	58.34	6.44
10/01/2024	1.59	30.90	161.10	61.88	6.00
07/02/2024	1.44	38.90	175.00	65.42	5.87
05/06/2024	2.16	44.20	104.80	68.95	5.87
31/07/2024	1.46	40.66	126.30	33.59	5.92

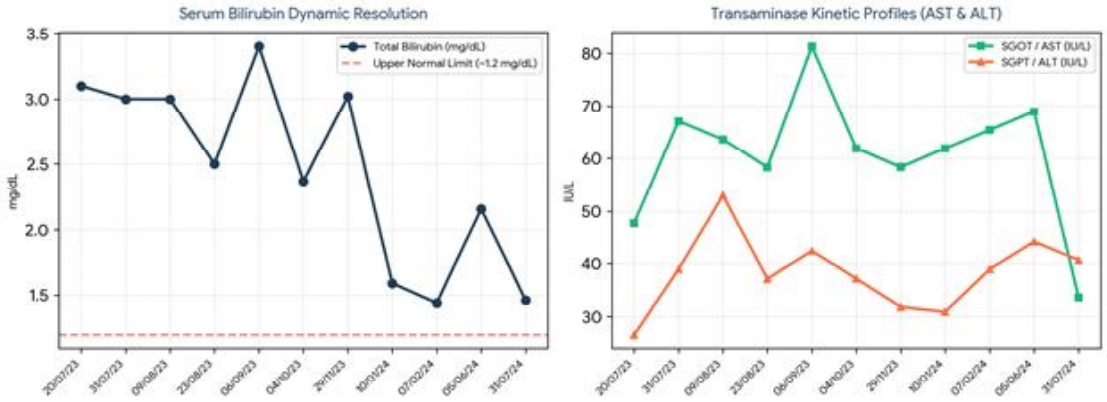

Figure 1. Longitudinal Biochemical Trends Over 12-Month Conservative Management Protocol.

Mechanistic Integration :

Managing abdominal wall hernias in cirrhotic patients poses a severe clinical challenge. Coexisting portal hypertension, transudative ascites, and impaired hepatic synthetic reserve markedly escalate surgical risks[6]. Performing hernioplasty in the presence of uncontrolled ascites leads to severe postoperative complications, including refractory fluid fistula formation, spontaneous bacterial peritonitis, rapid fascial dehiscence, and precipitated liver failure[5]. Hence, resolving fluid accumulation and stabilizing liver function are essential prerequisites for elective surgery[6].

The present case demonstrates how a multi-component botanical intervention successfully achieved biochemical and fluid stabilization. Mechanistically, this protocol operates through several synergistic pathways:

• **Hepatobiliary Decongestion :** Picrorhiza kurroa (Katuki) contains active cucurbitacin glycosides, picrosides (picroside I & II), and kutkoside[4,10]. These bioactive iridoid glycosides stimulate hepatic glutathione-S-transferase, downregulate lipid peroxidation, and exert cholegogic and purgative actions (Pitta Virechana), directly promoting bile drainage and reducing hyperbilirubinemia[4,8].

• **Diuresis and Ascites Reduction:** Phyllanthus niruri / urinaria (Bhumyamalaki) contains lignans (phyllanthin and hypophyllanthin) that exhibit proven diuretic (Mutrala) and hepatoprotective properties[4,7]. It aids physiological excretion of peritoneal fluid while preserving renal perfusion, attenuating systemic oxidative stress and inflammatory cascades[4,7].

• **Metabolic Optimization & Decompression:** The compound formulations (*Arogyavardhini Vati, Gomutra Haritaki, and Triphala*) address Jatharagnimandya and Dhatvagnimandya, facilitating metabolic cleansing (Ama Pachana) and gentle bowel decompression (Virechana)[9]. This relieves intra-abdominal tension, preventing hernia sac expansion or strangulation[12].

Inference :

This case highlights the clinical utility of structured Ayurvedic interventions in achieving preoperative optimization for cirrhotic patients with ascites and abdominal wall hernias. By effectively resolving ascites and stabilizing hepatic function without inducing renal compromise, conservative traditional protocols can bridge high-risk cirrhotic patients toward safe and elective surgical intervention. Further controlled clinical trials are recommended to systematically validate integrative hepatology pathways.

References (Vancouver Style - Alphabetical)

1. Abbas N, J Fallowfield, D Patch, AJ Stanley, R Mookerjee, and E Tsochatzis, *et al*. (2023). *Frontline Gastroenterology. 14:* 359-370. https://doi.org/10.1136/flgastro-2023-102381
2. Agnivesa, (2002). Charaka, Drudhbala. Charaka Samhitā: Chikitsāsthāna. Varanasi: Chaukhambha Orientalia; 2002. Adhyāya 13, Shloka 40; p. 385.
3. Agnivesa, (2002). Charaka, Drdhabala. Charaka Samhitā: Chikitsā Sthāna (Udara Chikitsitam Adhyāya 13, Verses 9–11, 46-49 In: Acharya JT, editor. Varanasi: Chaukhambha Orientalia; 2002. p. 490–491, 494-498
4. Medicinal Plants of India. (1987). Vol. 2. New Delhi: Indian Council of Medical Research; p. 405–411.
5. Ghosh N, R Ghosh, V Mandal, and SC. Mandal (2011). *Pharmaceutical Biology. 49:* 970-988. https://doi.org/10.3109/13880209.2011.558515
6. Howard-Williams E, M Fennell, H Frank, C Repetti, and J. Fuller (2024). Ascites with a Chance of Flooding: A Rare Complication of Cirrhosis. *Journal of Brown Hospital Medicine. 3:* https://doi.org/10.56305/001c.116952
7. Khare CP. (2007). Indian Medicinal Plants: An Illustrated Dictionary. Berlin/Heidelberg: Springer-Verlag; p. 485.
8. Kulkarni AV, A Rabiee, and A. Mohanty (2022). *Journal of Clinical and Experimental Hepatology. 12:* 1184-1199. https://doi.org/10.1016/j.jceh.2022.03.002
9. Mao X, LF Wu, HL Guo, WJ Chen,YP Cui, and Q Qi, *et al*. (2016). *Evidence-Based Complementary and Alternative Medicine*. 7584952. https://doi.org/

10.1155/2016/7584952
10. Sharmā P. (2006). Dravyaguna Vijñāna. Part 2. Varanasi: Chaukhambha Bharati Academy; p. 441.
11. Shetty SN, S Mengi, R Vaidya, and ADB. Vaidya (2010). *Journal of Ayurveda and Integrative Medicine. 1:* 203. https://doi.org/10.4103/0975-9476.72622
12. Vagbhata. (2002). Astāngahrdayam: Arśas Cikitsitādhyāya. Paradakara PH, editor. 9th ed. Varanasi: Chaukhambha Orientalia; 8/55; 15/1 p. 647, 693.