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A conceptual study on Liver Abscess with reference to *Abhyantara Vidradi*

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ABSTRACT

Vidradhi is a *Rakta Dusti Vikara* which undergoes rapid suppuration followed by *Puya* formation. *Acharya Sushrutha* has explained ten *Adhishthanas* of *Antarvidradhi,* among these *Yakrit Vidradhi* is also mentioned. *Acharya Charaka* has explained *Vidradhi* under *Raktavaha Sroto Vikara* in which *Rakta Dushti* and *Paaka* takes place predominantly. In modern concepts, one can precisely correlate abscess with *Vidradhi*. The extremely deranged and aggravated *Vata, Pitta, Kapha* resorting to the bone and vitiating *Tvaka* (skin) *Rakta* (blood), *Mamsa* (flesh) and *Meda* (fat) of person (with their own specific properties) gradually give rise to deep seated, painful, round or extended *Shopha* (swelling) is called *Vidradhi*.[1] It is of 6 types: *Vataj, Pittaj, Kaphaj, Sannipataj, Kshataj And Raktaj.* According to the site it is of two types- *Bahya* (external) and *Antah* (internal) *Vidradhi.*[2]

Key words: *Abhyantara Vidradi, Liver abscess, Pyogenic liver abscess. Amoebic liver abscess.*

INTRODUCTION

A liver abscess is a space-occupying suppurative lesion in the liver resulting from the invasion of microorganisms entering directly from an injury, through the blood vessels, or through the bile ducts. Generally, when bacteria or protozoa destroy hepatic tissue, the cavity produced will be filled up with an infective organism, liquefied cells & leucocytes. Liver abscess falls into two categories based on underlying causes: Bacterial infection, parasitic infection. Pyogenic Liver Abscess and Amoebic liver abscess.

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Antarvidradhi is a *Vridhi Beda* which develops in relation with *Kosta*[3]

Acharya Sushruta has also mentioned *Aharaja Nidanas*[4] of *Abhyantara Vidradi* are *Guru Anna, Asathmya Anna Ruksha, Atiusna Ahara, Bahu Madya Sevana.*

And also *Viharaja Nidanas* are *Ati Maithuna, Vega Sandharana, Ati Bhaara, Ati Shayana* and *Ati Vyayama.* There are 10 *Adhistanas*[5] of *Abhyantara Vidradi* mentioned in *Sushrutha Samhita,* among them *Yakrit Vidradi* is also one.

Pyogenic Liver Abscess[6]

A Pyogenic liver abscess is a pocket of pus that forms in the liver due to a bacterial infection. It may be solitary, multi locular and multiple.

MATERIALS AND METHODS

Causative organisms

Escherichia coli, Staphylococcus aureus, Haemolytic Streptococcu, Klebsiella, Proteus, Pseudomonas, Clostridia and Streptococcus species.[7]

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Signs and Symptoms

Pain in the right hypochondrium, fever with chills, sweating, nausea, vomiting, anorexia, weight loss, hepatomegaly, liver tenderness, jaundice, chest findings, spleenomegaly, sepsis, ascites.

Investigation Findings

- CBC - Leucocytosis - WBC count >10000/mm3
- Anaemia
- Hypoalbuminemia - Albumin <3g/dl
- LFT - ALP high
- Gamma glutamyl transpeptidase will be high
- Bilirubin > 2 gram/dl
- SGOT will be high
- ELISA should be performed.
- Indirect Haemaglutinin Assays (IHA) is most sensitive test.

Chest X Ray

Clues:

a. Right-lower-lobe atelectasis.

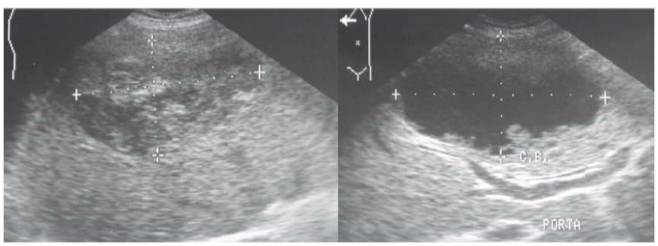
b. right pleural effusion

c. an elevated right hemi-diaphragm

d. Right cardiophrenic angle is obliterated

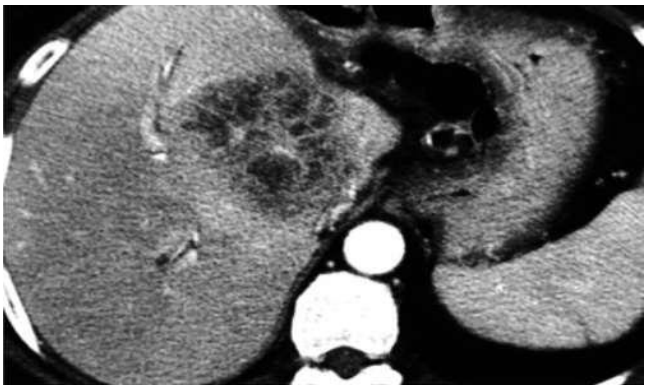
In plain abdominal films, air can be seen in the abscess cavities.

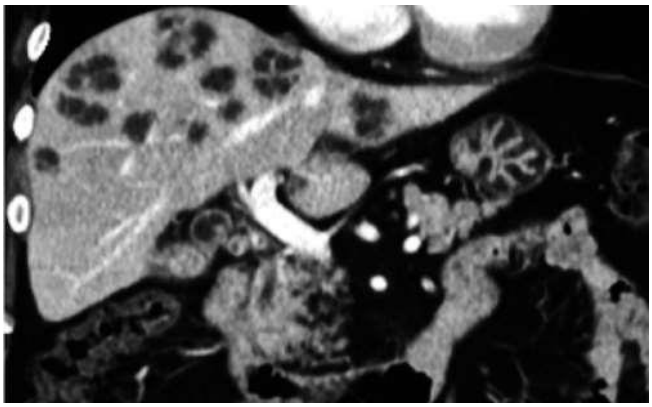
Ultrasonography



- Abscesses **as small as 1 cm in diameter** can be detected.
- **Can guide** needle aspiration of the abscess.
- US not only diagnoses and it also indicates the position of abscesses.

Computed tomography





- Computed tomography (CT) is more sensitive (95-100%) than US in detecting hepatic abscesses.
- Lesions are detectable to around 0.5 cm.
- The "**double target sign**" is a characteristic imaging feature of hepatic abscess demonstrated on CECT scans, in which a central low attenuation lesion (fluid filled) is surrounded by a high attenuation inner rim and a low attenuation outer ring.
- The "**cluster sign**" is a feature of Pyogenic Liver Abscess. It is an aggregation of multiple low attenuation liver lesions in a localized area to form a solitary larger abscess cavity.

Treatment for Pyogenic Liver Abscess

Conservative

Antibiotics (4-6 weeks)

a) Aminoglycoside

b) Clindamycin

c) either ampicillin or vancomycin.

d) aminoglycosides

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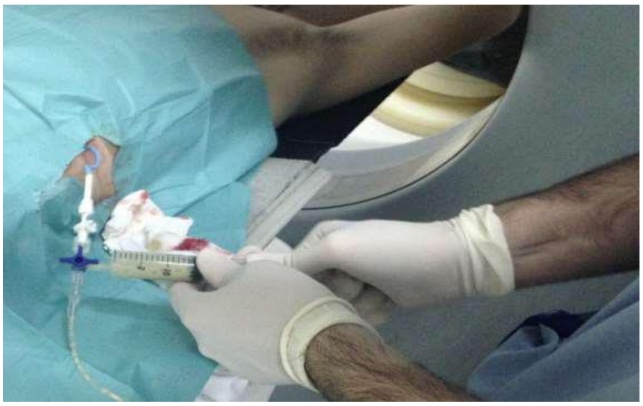
e) Metronidazole

f) Third-generation cephalosporin

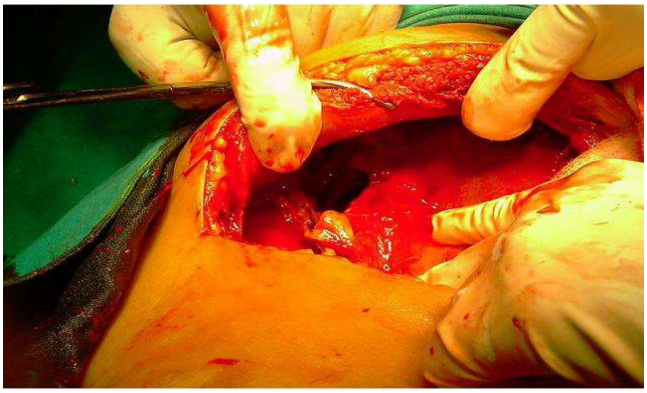
Percutaneous drainage

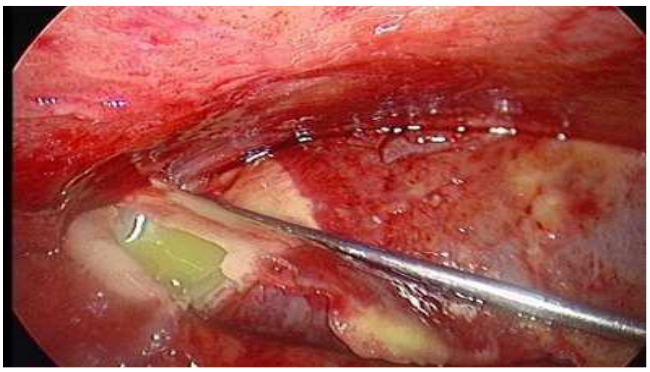
- US or CT guided aspiration and drainage by pig tail catheter
- Irrigation of cavity with saline



Open Surgical method

Laparotomy





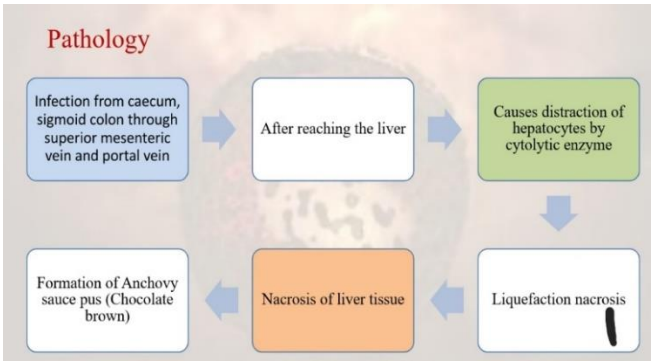
Open Surgical drainage Laproscopic drainage

Amoebic Abscess

- It's common in India and other tropical countries.
- Amoebic abscess (tropical abscess) caused by a parasite ***Entamoeba histolytica.***
- It's the commonest extra-intestinal presentation of amoebiasis.

Mode of transmission

- Large intestine (history of dysentery)
- Through portal vein



Signs and Symptoms

Systemic

- Fever with chills and rigors
- Loss of appetite
- Reduced weight
- Jaundice

Abdominal

- Intercostal tenderness
- Right quadrant pain
- Localized guarding and rigidity
- Ascites
- Splenomegaly

Thoracic

- Dry cough
- Chest pain
- Right shoulder pain
- Plueral effusion

Due to complications

- Septicaemia and Liver failure

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Investigation findings

- Increased **WBC count,** Altered **Albumin and Bilirubin** Increased **alkaline phosphatase,** Altered **SGOT and SGPT,**
- Stool examination for Ova and cysts of Entamoeba histolytica, Serologic testing - Indirect haemagglutination test will be positive
- US abdomen - to locate site of abscess, to confirm diagnosis
- Chest X-ray findings - pleural effusion and soft tissue shadow
- CT scan - raised diaphragm, presence of effusion, changes in the lungs

Treatment for Amoebic Liver Abscess

Conservative

Antibiotics (4-8 weeks)

- Metronidazole 750 mg three times a day for 10 to 14 days is the treatment of choice
- Tinidazole 600 mg BD x 5days
- IV or oral antibiotics are essential to control secondary infection
- Other drugs : Chloroquine 250mg BD 10 to 14 days

Inj: Dihydroemetile 1.5mg/kg/day IM for 5 days

Aspiration

- **Indication:** Large abscess >10cm, infected, failure of drug therapy, large left lobe abscess
- US guided needle aspiration
- Before aspiration BT, CT, DT- Normal.
- **Inj:** Vit K 10mg IM given for 3 days.
- Aspirant fluid CS should be done
- Aspirant fluid should be sent for trophozoites

Percutaneous drainage

- Under US guidance, Pig tail catheter is placed into abscess cavity percutaneously to drain the pus
- **Indication:** Failure of USG guided needle aspiration, Multiple abscess, ruptured abscess, if abscess cavity fills again after repeated aspiration or drainage, thick pus.

Abhyanthara Vidradhi Chikitsa

- In case of *Abhyanthara Vidradhi, Varunaadi Kashaya* added with *Ushakadigana* should be given.
- In *Abhyanthara Vidradhi & Parsvasula*[8] (pain in flanks) *Siravyadha* should be done in between the axilla & breast on the left flank.
- Role of *Paniya Kshara* is mentioned in *Abhyantara Vidhradhi*[9]

Differences between Amoebic liver abscess and Pyogenic liver abscess

Clinical features	Amoebic Liver abscess	Pyogenic liver abscess
Age (yrs)	20 to 40	>50
Male to female ratio	>= 10:1	1:1
Solitary vs Multiple	Solitary 80%	Solitary 50%
Location	Usually right liver	Usually right liver
Travel in endemic areas	Yes	No
Diabetes	Uncommon	More Common (27%)
Alcohol use	Common	Common
Jaundice	Uncommon	Common
Elevated Bilirubin	Uncommon	Common
Elevated alkaline phosphate	Common	Common
Positive blood culture	No	Common
Positive amoebic culture	Yes	No

DISCUSSION

Antarvidradhi is a *Darunatara Roga* which needs an early diagnosis and management. *Sushruta* while explaining the *Samprapti* of *Vidradhi* mentioned about the vitiation of *Doshas* in *Twak, Mamsa, Rakta, Medas, Asthi* whereas the same pathology i.e., haematogenous spread is the main source of infection in liver abscess.

Sushruta mentioned that the symptoms of *Abhyanthara Vidradhi* should be understood as similar with those of *Bahya Vidradhi*, by means of their *Apakva & Pakva Avasthasa* and few necessary investigations has to be incorporated for accurate diagnosis.

Acharya Sushruta has laid importance to *Raktha Mokshana, Kshara Prayoga* in *Amavastha and Bhedana Karma* in *Pakwavastha* of *Antharvidradhi*. In order to save the life of the patient this shows the importance of *Shalya Chikitsa* as *Pradhanatama*.

Advanced technology for diagnosis of liver abscess like USG, X-ray, MRI, CBC, stool examination, etc. is

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practiced. With the help of these tools diagnosis of *Yakrit Vidradhi* can be made precisely on the evidence based investigations which may be helpful to correlate with liver abscess.

Conclusion

Yakrit Vidradhi is life threatening condition which needs an early and précised diagnosis and treatment. Stages of liver abscess is a diagnostic challenge for both physician and surgeons based on physical examination alone, therefore relevant investigations are highly suggested to prevent delayed diagnosis which may lead to higher morbidity and mortality. *Paneeya Kshara* plays an important role in the management of *Abhyanthara Vidradi* since *Kshara* has properties like *Agni Deepana, Tridoshagna, Dosha Pachana* and *Ropana. Yakrit Vidradhi* is one among *Abhyanthara Vidradhi* & it can be managed with *Shastra Karma* where *Vyadhana* and *Visravana* are indicated in the management of *Vidradhi.* The main stay of treatment is adequate drainage and antibiotic regimen.

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