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# EFFICACY OF AYURVEDIC MANAGEMENT IN POST-SURGICAL CARE OF BREAST ABSCESS: A CLINICAL STUDY

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## Abstract

*The medical condition of breast abscess presents a major health problem for women across the globe because it negatively impacts their physical health and life quality. The conventional treatment of incarcerated inguinal hernia mainly depends on the surgical drainage and antibiotics that have been proved to be effective in controlling the acute infection but tend to develop complications such as delayed wound healing, recurrence, and psychological distress. The healthcare community shows increasing interest in Ayurveda as an integrative approach for holistic and adjunctive care because of existing healthcare challenges. In Ayurveda breast abscess is known as Stana Vidradhi and its treatment consists of diseased breast purification, wound healing and normalization of damaged tissue with herbal medicines, topical therapies and individualized regimen of various modalities of ayurvedic treatment. The available clinical evidence of Ayurvedic interventions for post-surgical breast abscess care is critically reviewed and promising outcomes include accelerated wound healing, reduced recurrence, increased patient satisfaction, and a reduction of post-surgery morbidity. Observational studies and case reports demonstrate that Ayurvedic treatments show promise for helping patients recover from breast abscesses during both short-term care and extended healing periods. However, these findings are encouraging, although there are still limitations in the form of the absence of large-scale consortia of large randomised trials, variability of treatment protocols and insufficient data on long term outcome. The piece emphasizes the demand for meticulous research, standardized methodologies, and collaborative framework to set a place for Ayurveda in the modern care. A healthcare approach combining patient-centered principles with conventional and Ayurvedic practices will create the best outcomes for breast abscess patients by managing their physical symptoms and their quality of life and psychosocial needs.*

**Keywords:** *Ayurveda, breast abscess, holistic care, integrative medicine, post-surgical management, wound healing*

## 1. INTRODUCTION

Breast abscess is a major health problem for women all over the world, and is a problem that goes far beyond acute physical pain and complications. Breast abscess is not only a burden in the immediate clinical scenario, but also has psychosocial implications for women, work productivity, maternal-infant health, and quality of life (Gattani & Kadam, 2025; Ghosh, n.d.; Ba et al., 2023; Pandey & Mishra, n.d.; Bhatti & Ali, 2015; Padmaja et al., 2023; Sinha et al., 2014; Ahmad et al., 2023; Arooj et al., 2022; Malik et al., 2018; Bates, Breast abscess is a significant clinical and public health burden in both developing and developed regions, often resulting in hospitalizations, surgeries, disruption with breastfeeding and family, and adjuring return to work (Ahmad et al., 2023; Malik et al., 2018; Bates, 2021; O'Brien et al., 2020). Changes in lifestyle, nutrition and social determinants of health have led to changing epidemiology of breast abscesses over recent decades, especially in women of reproductive age (Ghosh, n.d.; Ba et al., 2023; Bhatti & Ali, 2015; Padmaja et al., 2023; Pandey & Mishra, n.d.). The incidence and complexity of breast abscess cases have been implicated in increases in lifestyle diseases and changes in sociodemographic profiles such as higher rates of obesity, diabetes, and delayed childbearing (Ba et al., 2023; Padmaja et al., 2023; Pandey & Mishra, n.d.; Bhatti & Ali, 2015). Additionally, modern organizations may have working women who may have unique risk factors and barriers to timely care, thereby increasing the health impact of breast abscesses in urban and semi urban populations (Bhatti & Ali, 2015; Padmaja et al., 2023).

Breast abscess is usually clinically classified as lactational or no lactational, with lactational abscesses occurring most commonly in the setting of mastitis in breastfeeding women (Sinha et al., 2014; Ahmad et al., 2023; Jena et al., 2019; Bates, 2021). Although other bacteria such like Escherichia coli has been reported especially in non-lactation abscesses (Jena et al, 2019; Şimşek et al, 2014; Aggarwal, 2024), the leading causative organism is Staphylococcus aureus. Patients present with localized pain, swelling, erythema and sometimes systemic symptoms such as fever (Bates, 2021; O'Brien et al., 2020; Dixon, 2007; Tan & Low, 1998). Although tardy presentation is regular in low asset settings (Malik et al., 2018; Ibrahim and Omoyibo, 2019), early recognition and opportune management are fundamental to gauge difficulties and keep up the state of breast tissue. Conventionally, management of breast abscess relies heavily on surgical intervention, particularly incision and drainage, often coupled with systemic antibiotic therapy (Sinha et al., 2014; Ahmad et al., 2023; Arooj et al., 2022; Malik et al., 2018; Bates, 2021; O'Brien et al., 2020; Javed et al., 2017; Dixon, 2007; Tan & Low, 1998; Saeed et al., 2021; Mallika & Shukla, 2006; Eryilmaz et al., 2005; Dener & İnan, 2003; Sheih et al., 2009; Harish, 1997; Thirumalaikumar & Kommu, 2004; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013; Hansen & Axelsson, 2003). Needle aspiration, either by itself or in combination with a catheter drainage, has become popular as a minimally invasive procedure for smaller collections (Javed et al., 2017; Fardhus et al., 2018; Saeed et al., 2021; Mallika & Shukla, 2006; Harish, 1997). Although these approaches are generally effective for immediate symptom relief and pus evacuation, recurrence, delayed wound healing, development of chronic fistulae and rising antibiotic resistance are increasingly threatening optimal patient outcomes (Ibrahim & Omoyibo, 2019; Rahman, 2023; Javed et al., 2017; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013).

The psychosocial repercussions of breast abscess are not to be underestimated. Women affected with this disease often experience anxiety, depression, social isolation, and disruption in their daily life, which are further aggravated by loss of productivity and financial burden due to prolonged treatment or recurrent abscesses (Gattani & Kadam, 2025; Bhatti & Ali, 2015; Padmaja et al., 2023; Gaikwad, n.d.; Malik et al., 2018). Downstream effects on infant nutrition and hence family well-being can occur due to adverse effects on maternal mental health and breastfeeding practices (Padmaja et al., 2023; Ahmad et al., 2023; Bates, 2021). Such factors, including low or unfair distribution of resources such as personnel, funds and health care facilities, can aggravate the health inequities and hamper access to timely and efficient health care in resource scarce environments (Ibrahim & Omoyibo, 2019; Arooj et al., 2022; Malik et al., 2018; and Bates, 2021). In the midst of all these challenges there is a rising global interest in integrative and complementary therapeutics for women's health based on many women's dissatisfaction with conventional care and their desire to seek more holistic and patient centered approaches to managing their health conditions (Ba et al., 2023; Padmaja et al., 2023; Pandey and Mishra, n.d.; Jude et al., 2022). According to India's ancient medical tradition of Ayurveda, infection management, wound care and post-surgery recovery is unique as it emphasises individualised treatment, natural remedies, and restoration of systemic balance (Gv et al., 2024; Warriar & Athulaya, 2022; Gaikwad, n.d.; Ahamed & Sahl, 2025; Patil et al., 2023; Kaushik et al., n.d.; Vashishth & Bhola, 2021; Shreyes & MR, 2024).

Case reports and clinical experiences abound in the use of Ayurvedic therapies for the management of breast abscesses, including post-surgical care (Gv et al., 2024; Warriar & Athulaya, 2022; Gaikwad, n.d.; Ahamed & Sahl, 2025; Patil et al., 2023; Kaushik et al., n.d.; Vashishth & Bhola, 2021; Shreyes & MR, 2024). Ayurvedic approach uses a number of internal and external therapies like herbal decoctions, medicated oils, lepas (pastes), dietary/lifestyle interventions, many of which have shown anti-inflammatory, antimicrobial and wound healing properties (Sharma & Sharma, 2022; Yadav et al., 2022; Jude et al., 2022; Patil et al., 2023). In recent times, the connection between Ayurveda and enabling patients to feel more comfortable, reduce recurrence, and maintain quality of life has also been highlighted (Gaikwad, n.d.; Ahamed & Sahl, 2025; Patil et al., 2023). In light of the changing scenario of women's health, increasing intricacy of breast abscess management and the limitations of the conventional therapy, it is timely and appropriate to critically evaluate the role of Ayurvedic interventions in the post-surgical care of breast abscess. In this review, previously published case studies, observational reports as well as the allied literature in this context are critically reviewed to appraise the effectiveness of Ayurvedic management of such cases, and situated within the overall context of integrative women's health and evidence-based practice (Gv et al., 2023; Warriar and Athulaya, 2023; Gaikwad, n.d.; Ahamed and Sahl, 2025; Patil et al., 2024; Kaushik et al., n.d.; Vashishth and Bhola, 2021; Shreyes and MR

## 2. Breast Abscess: Clinical Overview

Breast abscess is a well circumscribed collection of pus within the breast tissue which develops as a complication of local infection and inflammation. It is traditionally most commonly seen in lactating women (lactational or puerperal abscess) but can also be seen in non-lactational situations including in men and non-breastfeeding women (Sinha et al., 2014; Jena et al., 2019; Ahmad et al., 2023; Arooj et al., 2022; Malik et al., 2018; Ibrahim & Omoyibo, 2019; Rahman, 2023; Bates, 2021; O'Brien et al., 2020; Tan & Low, 1998; Fard

### 2.1 Epidemiology and Clinical Relevance

Although breast abscesses form a considerable health burden in both developed and developing regions, risk factors and the proportion of breast abscesses may alter according to the region (Ahmad et al., 2023; Arooj et al., 2022; Malik et al., 2018). Late presentation and delayed treatment are still common in the resource constrained environments with more severe disease at diagnosis (Ibrahim & Omoyibo, 2019). Lactational abscesses are more likely to occur in the first few weeks postpartum when milk stasis and nipple trauma are most likely, allowing bacterial entry and infection (Sinha et al., 2014; Ahmad et al., 2023). Abscesses that are not lactation– related are less common but tend to have associated risk factors, like diabetes, smoking or chronic mastitis (O'Brien et al., 2020). Although rare, bilateral male breast abscess has been reported, and recent studies have shown an increasing incidence of breast abscess in non-lactating women (Sinha et al., 2014; Rahman, 2023). Incidence in lactating women varies from 0.4–11% of breastfeeding women depending on population characteristics and access to perinatal care (Ahmad et al., 2023; Arooj et al., 2022).

### 2.2 Pathophysiology

Development of a breast abscess is usually preceded by ductal obstruction, which may be caused by milk stasis, trauma, or ductal ectasia (Sinha et al., 2014; Jena et al., 2019; Ahmad et al., 2023; Malik et al., 2018). Once the duct is obstructed, bacteria can ascend through the nipple, grow in stagnant milk and invade surrounding tissues. Leukocyte infiltration and tissue necrosis cause liquefaction and pus formation, and the body mounts an inflammatory response. In most of the lactational abscesses, Staphylococcus aureus is the most common causative organism, however in other types of non-lactational and recurrent cases, methicillin resistant strains of baseta and other bacteria like Escherichia coli can be involved (Fardhus et al., 2018; Saeed et al., 2021; Jena et al., 2019). New emerging pathogens and mixed infections, are also reported such as rare coinfection with disease caused by organism as Salmonella typhi or Mycobacterium tuberculosis (Jena et al. 2019).

### 2.3 Clinical Presentation

Breast abscess is common in patients who present with a painful, localized, fluctuant swelling in the breast with erythema, warmth and tenderness (Tan & Low, 1998; Ibrahim & Omoyibo, 2019). As it matures, the abscess may point towards the surface with the overlying skin appearing shiny, edematous or even thinned (Bates, 2021; O'Brien et al., 2020). In larger or more severe infections, fever and malaise may be present (Tan & Low, 1998; Ibrahim & Omoyibo, 2019). There is a history of prior mastitis, milk stasis, or recent breast trauma occasionally (Sinha et al., 2014; Ahmad et al., 2023). The abscess usually develops in lactating women after an episode of mastitis or unresolved infection, and can cause difficulty breastfeeding, which can compromise infant nutrition (Ahmad et al., 2023; Malik et al., 2018). Abscesses in non-lactational patients may be less acute but can be associated with chronic pain, recurrent discharge and sometimes underlying malignancy or chronic inflammatory disease (O'Brien et al., 2020).

### 2.4 Diagnosis

Clinical examination is the mainstay for diagnosis of breast abscess, and remains the cornerstone for identifying classical features of a tender, fluctuant mass, erythema and local warmth (Tan & Low, 1998; Ibrahim & Omoyibo, 2019). Although they can be difficult to differentiate from cellulitis, mastitis or even malignancy in atypical cases and in non-lactating women (O'Brien and Strange, 2020). Ultrasonography is particularly useful in confirming the diagnosis, assessing the extent of the abscess, guiding needle aspiration and excluding underlying malignancy (Ibrahim & Omoyibo, 2019; Mallika & Shukla, 2006; Eryilmaz et al., 2005; Sheih et al., 2009). Ultrasound usually demonstrates a hypoechoic or anechoic collection with internal debris and may also show multiple loculations or satellite abscesses, especially in recurrent or complicated cases (Mallika & Shukla, 2006; Eryilmaz et al., 2005). Aspiration of pus under ultrasound guidance is a definitive diagnosis and can be used therapeutically in select patients (Sheih et al., 2009; Fardhus et al., 2018; Saeed et al., 2021). Pus culture and sensitivity can be done in the laboratory to tailor antibiotic therapy especially in cases of recurrence or treatment failure, blood counts and inflammatory markers can be used to monitor disease severity (Jena et al., 2019; Fardhus et al., 2018).

Breast abscess is a complex clinical entity with considerable public health implications for women. The pathophysiology of its cyclical progression of ductal obstruction to bacterial infection and abscess formation is based on a cascade from ductal obstruction to bacterial infection and abscess formation with the main pathogen being Staphylococcus aureus. Recognition, early diagnosis and treatment, remain essential for the prevention of any complications and optimising the prognosis of the affected women (Sinha et al., 2014; Jena et al., 2019; Ahmad et al., 2023; Arooj et al., 2022; Malik et al., 2018; Ibrahim & Omoyibo, 2019; Rahman, 2023; Bates, 2021; O'Brien et al., 2020; Tan & Low, 1998; Fardhus et al., 2018; Saeed et al., 2021).

## 3. Conventional Management of Breast Abscess

The conventional management of breast abscess is timely surgical evacuation of pus and appropriate medical therapy and supportive care. Traditionally, the goal of these approaches is to lessen symptoms, reduce complications, and save the breast. However, there are still a number of challenges—especially in the resource poor settings.

### 3.1 Surgical Management

#### 3.1.1 Incision and Drainage (I&D)

The gold standard for treatment of breast abscess is incision and drainage (I&D), especially when the abscess is large, multiloculated, or not amenable to needle aspiration (Dener & İnan, 2003; Sheih et al., 2009; Harish, 1997; Thirumalaikumar & Kommu, 2004; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013; Hansen & Axelsson, 2003). A small incision is made at the site of maximal fluctuance under local or general anesthesia, pus is evacuated, and the cavity is irrigated.

The gold standard for managing breast abscesses is incision and drainage (I&D), which is outlined in Table 1. First, local or general anesthesia is administered to the patient to ensure his comfort. The area of maximal fluctuance is then incised and the abscess cavity is thoroughly evacuated of pus and debris. To reduce the risk of persistent infection, a saline solution is irrigated into the cavity. The cavity may be packed or left open to continue to drain depending on the surgeon's preference. Wound checks and dressing changes on a regular basis should be performed to the monitoring of healing and the reduction of recurrence (Dener & İnan, 2003; Kataria et al., 2013).

**Table 1. Key Steps in Incision and Drainage Procedure**

| Step | Description |
|---|---|
| Anesthesia | Local or general anesthesia administered |
| Incision | Made at area of maximum fluctuance |
| Pus evacuation | Thorough removal of pus and debris |
| Irrigation | Cavity washed with saline solution |
| Cavity management | May be packed or left open to allow continued drainage |
| Follow-up | Regular wound checks, dressing changes, and healing checks |

*Source: Dener & İnan (2003); Kataria et al. (2013)*

Rapid symptom relief occurs with I&D but the wound must be cleaned daily and may be left to produce a residual scar. For some patients, a large abscess may require repeated procedures.

#### 3.1.2 Needle Aspiration and Catheter Drainage

Percutaneous needle aspiration, sometimes under ultrasound guidance, is effective for smaller abscesses (<3 cm) or those detected early (Mallika & Shukla, 2006; Eryilmaz et al., 2005; Dener & İnan, 2003; Sheih et al., 2009; Harish, 1997; Thirumalaikumar & Kommu, 2004; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013; Hansen & Axelsson, 2003). If the aspiration is not successful, it may need to be repeated every few days until the resolution. Another minimally invasive alternative is to drain catheter the abscess, especially for multiloculated abscesses.

As can be seen in Table 2, there is a clear comparison between the two main interventions for the management of breast abscesses: incision and drainage (I&D) and needle aspiration or catheter drainage. It is usually more invasive, which may require anesthesia and results in a visible incision with a possible residual scar. For large or complex abscesses, it is best suited because it allows for complete evacuation and reduces the chance of recurrence if done properly. Recovery can be slower and care of the wound usually more involved.

On the other hand, needle aspiration and catheter drainage are both less invasive and most often do not require anesthesia, and typically leave no or minimal scarring. The most typical use of these techniques is for small uncomplicated abscesses and they can often be done as an outpatient procedure. However, they may need more than one session to resolve completely and have a slightly higher recurrence rate if drainage is not complete. Regular wound care and appropriate antibiotic therapy should be supported by both approaches (Mallika & Shukla, 2006; Fardhus et al., 2018; Saeed et al., 2021).

**Table 2. Comparison: I&D vs. Needle Aspiration**

| Feature | Incision & Drainage (I&D) | Needle Aspiration/Catheter Drainage |
|---|---|---|
| Invasiveness | More invasive | Minimally invasive |
| Anesthesia | Usually required | Often not required |
| Recurrence | Lower (if thorough) | May need multiple sessions |
| Healing time | Can be longer | Usually shorter if uncomplicated |
| Scar | More likely | Minimal or none |
| Suitability | Large, complex abscesses | Small, simple abscesses |

*Source: Mallika & Shukla (2006); Fardhus et al. (2018); Saeed et al. (2021)*

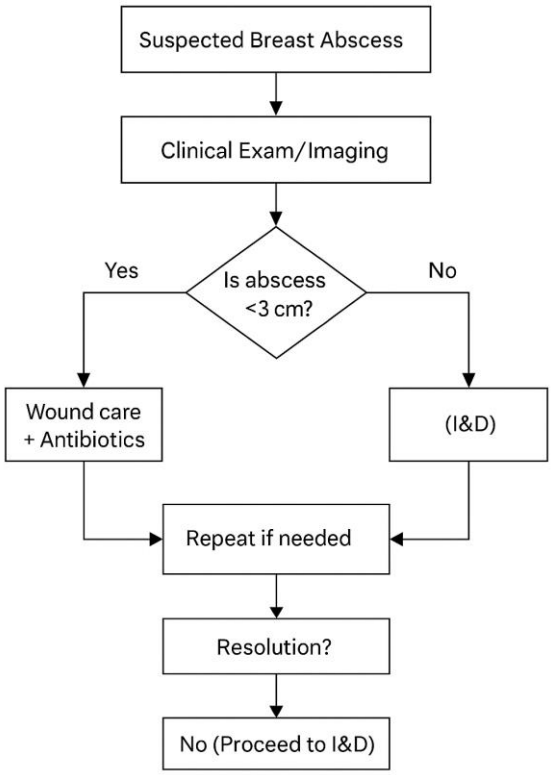


**Figure 1. Flowchart Illustrating the Conventional Management Pathway for Breast Abscess**

The decision-making process for surgical management of breast abscess starts with clinical suspicion of the condition, clinical examination and imaging to confirm the diagnosis as shown in Figure 1. The next important step is to determine the size of the abscess. Minimally invasive approaches including needle aspiration usually are preferred if the abscess is less than 3 cm in size. This is usually an option for smaller, uncomplicated abscesses and may need to be repeated if the abscess does not go away. Repeated aspirations will not achieve resolution, or if the abscess is greater than 3 cm in size at presentation, the standard treatment is incision and drainage (I&D). While less invasive, total evacuation of pus is done, and it is advisable for larger or complex abscesses. By doing so, this stepwise approach allows clinicians to pick the best management strategy with the least invasiveness for each of their patients.

**3.2 Medical Management**

Empirically, antibiotics are prescribed to cover Staphylococcus aureus and other common skin flora until culture and sensitivity results are available (Eryilmaz et al., 2005; Thirumalaikumar & Kommu, 2004; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013; Hansen & Axelsson, 2003). Initially broad-spectrum agents are used and then narrowed as appropriate. Wound care that is supportive, with regular dressing, pain control as appropriate and psychosocial care including reading to the patient about breast hygiene and the importance of continuing to breastfeed (if applicable) is essential to the recovery (Eryilmaz et al., 2005; Kataria et al., 2013; Hansen and Axelsson, 2003).

**3.3 Outcomes and Challenges**

Although, technical advances have been made and yet difficulties and poor outcomes are no strangers to such treatment, particularly in resource limited settings or when diagnosis and treatment was delayed (Ibrahim & Omoyibo, 2019; Rahman, 2023; Javed et al., 2017; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013).

**Major Challenges:**

- **Recurrence:** Incomplete drainage or complex, loculated abscesses have variable rates of recurrence that can be high (Naeem et al., 2012, Kataria et al., 2013).
- **Fistula Formation:** A persistent fistula can develop as a result of the chronic or inadequately treated abscesses.
- **Delayed Wound Healing:** Long healing time and impact on quality of life (Ibrahim & Omoyibo, 2019; Rahman, 2023).
- **Antibiotic Resistance:** Methicillin resistant Staphylococcus aureus (MRSA) has had the increasing prevalence which complicates antibiotic therapy and still should be precisely selected according to culture study results (Benson, 1989; Kataria et al., 2013).

There are long follow up and wound care that have a considerable negative impact on the mental health, work and daily activities of the patients (Ibrahim & Omoyibo, 2019; Rahman, 2023).

The most common complications of conventional management of breast abscess are summarized in Table 3. Recurrent scrotal edema often develops and can require multiple re interventions if not drained completely or in the setting of risk factors. The benefits of fistula formation are due to chronic or incompletely drained abscesses that remain draining and are slow to heal. Delayed wound healing is another major challenge that lengthens the recovery and puts the individual at risk of infections. Complications in treatment options and outcomes are due to antibiotic resistance and in particular methicillin resistant Staphylococcus aureus (MRSA). Moreover, surgical procedures may lead to breast deformity or scarring, which affect cosmetic and psychological domain of patient care.

**Table 3. Common Complications in Conventional Management**

| Complication | Description | References |
|---|---|---|
| Recurrence | Return of abscess at the same or new site | Naeem et al., 2012; Kataria et al., 2013 |
| Fistula | Persistent abnormal tract formation | Benson, 1989; Kataria et al., 2013 |
| Delayed healing | Wound fails to heal promptly | Ibrahim & Omoyibo, 2019; Rahman, 2023 |
| Antibiotic resistance | Infection with resistant organisms | Benson, 1989; Kataria et al., 2013 |
| Breast deformity | Post-surgical scarring, loss of contour | Eryilmaz et al., 2005; Hansen & Axelsson, 2003 |

The methods to manage breast abscesses are well defined with a surgical evacuation of the pus either by incision and drainage or minimally invasive aspiration as well as antibiotics and diligent wound care. Each method has its own indications, benefits and drawbacks. However, recurrence, fistula, delayed healing and antibiotic resistance remain challenging to clinicians even in resource limited settings. Effective care is still based on patient education, timely intervention and appropriate technique selection (Dener & İnan, 2003; Eryilmaz et al., 2005; Naeem et al., 2012; Kataria et al., 2013; Hansen & Axelsson, 2003).

## 4. Burden and Quality of Life in Women with Breast Abscess

In addition to the acute physical symptoms, breast abscesses pose a great psychological, social and economic burden to affected women. This condition has repercussions that go beyond immediate health concerns and affects body image, maternal and infant health, mental health and overall quality of life (Gattani & Kadam, 2025; Padmaja et al., 2023; Malik et al., 2018).

### 4.1 Physical and Psychosocial Impact

Breast abscess has an acute presentation with severe pain, swelling and functional limitation which directly affects a woman's daily life and her ability to care for herself and her family (Sinha et al., 2014; Ahmad et al., 2023). Aside from physical discomfort, many women suffer psychologically, like worry, gloominess, loss of self-esteem, principally because of visible scars, lasting injury or change in breast form (Padmaja et al., 2023; Gaikwad, n.d.; O'Brien et al., 2020). Social withdrawal and loss of confidence may arise due to the stigma attached to breast disease and repeated interventions or prolonged healing may cause chronic psychological stress (Malik et al., 2018; Gaikwad, n.d.).

Table 4 summarizes the main ways in which breast abscess affects women's quality of life. The condition is physically because it causes pain, swelling, and slows down the healing of the wounds which limits daily activities. Women may psychologically feel anxious, depressed, and have body image concerns if there are visible scars or ongoing symptoms. Stigma and embarrassment are socially hampering to the point of isolation and reduced participation in social roles. It also affects maternal function, breastfeeding becomes difficult, disrupting mother infant bonding and infant nutrition. These factors together highlight the wide-reaching burden of breast abscess beyond immediate physical illness.

**Table 4. Key Dimensions of Quality of Life Affected by Breast Abscess**

| Dimension | Examples | Key References |
|---|---|---|
| Physical Health | Pain, swelling, wound healing delay | Sinha et al., 2014; Ahmad et al., 2023 |
| Psychological Health | Anxiety, depression, body image issues | Padmaja et al., 2023; Gaikwad, n.d. |
| Social Well-being | Isolation, stigma, reduced social participation | O'Brien et al., 2020; Malik et al., 2018 |
| Maternal Function | Difficulty breastfeeding, impaired infant bonding | Ahmad et al., 2023; Malik et al., 2018 |

### 4.2 Impact on Lactation and Infant Health

Breast abscess is a major cause of breastfeeding disruption. This often leaves affected mothers unable to continue lactation leading to reduced milk supply or discontinuation of breastfeeding which can affect the nutrition as well as the bonding of child (Ahmad et al., 2023; Sinha et al., 2014; Arooj et al., 2022; Malik et al., 2018). According to (Padmaja et al., 2023; Ahmad et al., 2023), the interruption of exclusive breastfeeding for infants promotes malnutrition, infections and slow growth.

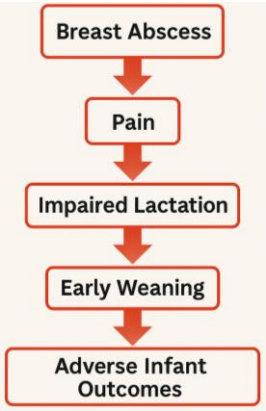


**Figure 2. Pathways from Breast Abscess to Maternal and Infant Health Outcomes**

The sequential impact of a breast abscess on maternal and infant health outcomes is shown in Figure 2. The flowchart indicates that breast abscess first leads to pain that may interfere with lactation in affected mothers. Impaired lactation often results in early weaning of infants whose optimal breastfeeding is thus denied. As a result, the risk of adverse infant outcomes such as poor nutrition and increased vulnerability to illness is increased. The figure shows the cascading consequences of breast abscess and the importance of early intervention to safeguard maternal and child health.

### 4.3 Socioeconomic Consequences

Breast abscess: The direct healthcare costs of breast abscess include surgery, antibiotics, repeated dressing, and the indirect costs: lost income from work absenteeism or reduced productivity among the working woman (Bhatti & Ali, 2015 Padmaja et al., 2023). Delayed care in the low resource settings can further aggravate the expenses and recovery time, especially when it comes to women without social or financial support (Malik et al., 2018; Ibrahim & Omoyibo, 2019). A concatenation may help to form cycles of poverty and poor life quality.

### 4.4 Special Considerations in Low-Resource Settings

In resource constrained environments women experience additional barriers to health such as delayed diagnoses, limited access to skilled care and inadequate social support that compound impact on women's health and economic status (Padmaja et al. 2023; Malik et al. 2018; Ibrahim & Omoyibo 2019). As women, this intersection of gender, social roles and access to healthcare can make for especially vulnerable women, especially when it comes to long term effects. Breast abscess has multidimensional effects on women's physical, psychological, social and economic well-being. Disruption of lactation not only endangers the mother but also the health of her infant, thereby justifying imperative need for timely, holistic and culturally sensitive interventions (Padmaja et al., 2023; Malik et al., 2018; Ahmad et al., 2023).

## 5. Ayurveda: Principles and Approaches to Wound and Abscess Management

Stana Vidradhi, or breast abscess, is a condition that can be understood and treated using a holistic approach as provided by Ayurveda, India's ancient medical science. Classically, this condition is described as a swelling with pain and suppuration and needs a multifaceted approach for effective management (Ahamed & Sahl, 2025; Patil et al., 2023).

### 5.1 Conceptualization of Breast Abscess in Ayurveda

Stana Vidradhi is a condition in which vitiated doshas (bodily humors) get localized in the breast tissue causing inflammation, swelling and pus formation (Ahamed & Sahl, 2025; KAUSHIK et al., n.d.; Shreyes & MR, 2024). In addition to focusing on symptom relief, the approach is to correct underlying systemic imbalances so that total healing and recurrence can be avoided.

The Ayurvedic conceptualization of breast abscess is summarized in Table 5 as Stana Vidradhi. As per Ayurveda, the core symptoms of Stana Vidradhi are swelling, pain, redness and suppuration. It is the vitiation of bodily humors (doshas) and obstruction of bodily channels (srotas) that results in localized inflammation and pus formation. Ayurveda recognizes acute and chronic disease courses and complications such as chronic wounds and sinus formation. This perspective further focuses not only on symptomatic relief but also correction of systemic imbalances that is pivotal to achieving long term healing and prevention of recurrence of the problem (Ahamed & Sahl, 2025; Patil et al., 2023).

**Table 5. Ayurvedic View of Stana Vidradhi (Breast Abscess)**

| Feature | Ayurvedic Perspective | References |
|---|---|---|
| Name | Stana Vidradhi | Ahamed & Sahl, 2025 |
| Core symptoms | Swelling, pain, redness, suppuration | KAUSHIK et al., n.d.; Shreyes & MR, 2024 |
| Pathogenesis (Samprapti) | Vitiation of doshas, obstruction of srotas (channels) | Ahamed & Sahl, 2025; Patil et al., 2023 |
| Disease course | Acute or chronic, risk of sinus/fistula formation | KAUSHIK et al., n.d. |
| Complications | Chronic wounds, delayed healing, systemic effects | Patil et al., 2023 |

**5.2 Ayurvedic Principles of Management**

Ayurvedic management of breast abscess involves three main pillars (Ahamed & Sahl, 2025; Patil et al., 2023):

1. **Shodhana (Purification):** Internal or external purification therapies to eliminate toxins and infectious material in order to clear the abscess and restore tissue health.
2. **Ropana (Wound Healing):** The use of herbal formulations that are known for their healing and antimicrobial properties for promotion of tissue repair.
3. **Samshamana (Pacification/Restoration):** By diet, lifestyle modifications and specific medicines (Patil et al., 2023) balance is restored to the affected doshas.

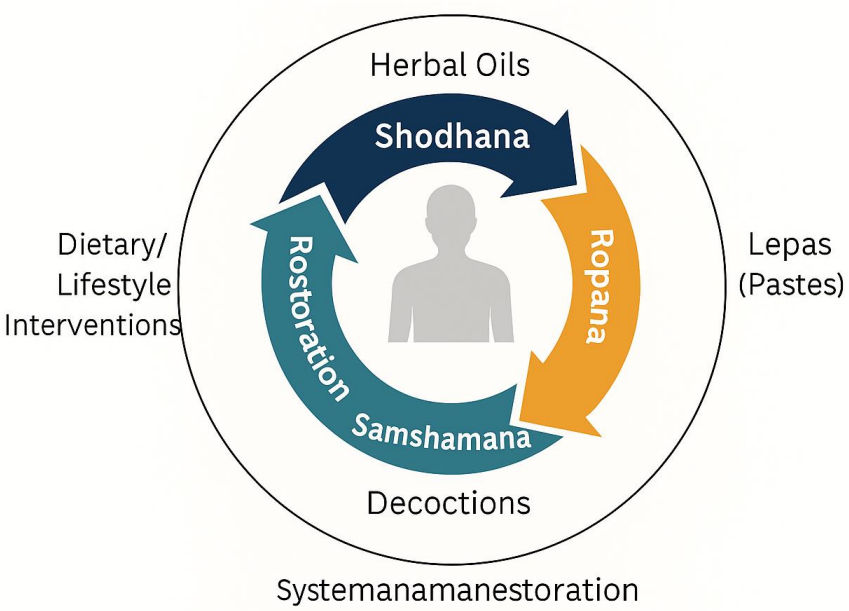


**Figure 3. Ayurvedic Treatment Framework for Breast Abscess (Stana Vidradhi)**

The Ayurvedic treatment framework for breast abscess (Stana Vidradhi) is patient centered and cyclical in nature as shown in Figure 3. Seen as cyclical, Ropana and Samshamana processes are interconnected with Shodhana processes and are part of continuous processes of care, characterised by the three core principles: Shodhana, Ropana, and Samshamana. The figure surrounds these principles with key modalities including herbal oils, lepas (pastes), decoctions, and dietary or lifestyle interventions, which are indicative of the integrative and individualized approach Ayurveda takes to manage and heal in the long term.

**5.3 Core Ayurvedic Interventions**

- Ayurvedic treatment is individualized to the patient's constitution, chronicity and severity of abscess, and associated systemic factors (Jude et al., 2022; Patil et al., 2023). Key interventions include:
- **Topical Applications:**
  Medicated oils (e.g. Panchvalkaladi taila), herbal pastes (lepas) and the decoctions of fresh skin scrapings and powders to reduce inflammation, promote healing (Patil et al., 2023; Vashishth & Bhola, 2021; Shreyes & MR, 2024).
- **Internal Medications:**
  Antimicrobial, immunomodulatory and wound healing properties of herbal decoctions and formulations like Triphala kwath or Guduchi are administered (Patil et al., 2023; Shreyes & MR, 2024).
- **Diet and Lifestyle:**
  A diet which favors consumption of easily digested food and anti-inflammatory food, and a lifestyle which includes adequate rest and stress management is integral in recovery and prevention of recurrence (Ahamed & Sahl, 2025).

The principal Ayurvedic therapies used in managing breast abscess (Stana Vidradhi) are outlined in Table 6. Finally, it classifies interventions according to the mode of application, namely topical, internal and systemic (systemic being the major contribution) and reports their main therapeutic actions. The antimicrobial and wound healing property of Panchvalkaladi oil and herbal lepas (pastes), and administering herbal decoctions internally helps in boosting immunity and detoxifying the body is valued. Also, dietary regulation and lifestyle changes help in healing and prevent recurrence. Ayurveda's complete, multifold method of approach of concerned tissues as well as entire body through systemic therapies along with localized treatments is aptly exemplified through the table (Patil et al., 2023; Ahamed & Sahl, 2025).

**Table 6 Key Ayurvedic Therapies in Breast Abscess Management**

| Therapy | Mode | Main Actions | Evidence/Reference |
|---|---|---|---|
| Panchvalkaladi oil | Topical | Antimicrobial, anti-inflammatory, wound healing | Patil et al., 2023; Vashishth & Bhola, 2021 |
| Herbal Lepas | Topical | Reduces swelling, draws out pus, promotes granulation | Shreyes & MR, 2024 |
| Herbal Decoctions | Internal | Immune boosting, detoxification | Patil et al., 2023; Shreyes & MR, 2024 |
| Dietary Regulation | Systemic | Supports digestion and healing | Ahamed & Sahl, 2025 |

### 5.4 Non-Invasive and Holistic Approaches

The preference of non-invasive and holistic modalities of Ayurveda in both acute and post-surgical settings is a clear strength of ayurveda. Conventionally, Ayurvedic was combined with conventional wound care interventions, which can safely be integrated and had the effect of accelerating healing and reducing recurrence, while improving patient comfort and quality of life (Patil et al., 2023; Shreyes & MR, 2024).

Holistic care includes:

- Regular wound dressings with medicated oils or lepas
- Systemic therapies to reduce recurrence risk
- Patient education on hygiene and preventive practices (Patil et al., 2023)

They provide a unique way in managing breast abscesses on basis of purification, wound healing and systemic balance through individualized minimally invasive therapies based on Ayurveda. Clinical reports have shown promising results of integrating topical, internal, and lifestyle-based interventions in Ayurveda as a valuable complement or alternative to conventional post-surgical care (Patil et al., 2023; Shreyes & MR, 2024; Vashishth & Bhola, 2021).

## 6. Review of Evidence: Ayurvedic Management in Breast Abscess Care

### 6.1 Case Reports and Clinical Experiences

A large and increasing number of case reports have shown that Ayurvedic management is effective in both lactational and non-lactational breast abscess cases. Use of individualized Ayurvedic regimen involving Panchvalkaladi oil dressing, herbal decoction and specific wound care practices along with accelerated wound healing, reduced recurrence rate and patient satisfaction has been reported in these reports (Gv et al., 2024; Warriar and Athulaya 2022; Gaikwad n.d.; Ahamed and Sahl, 2025; Patil et al., 2023; KAUSHIK et al., n.d; Vashishth and Bhola, 2021; Shreyes and MR, 2024). Ayurveda also has potential in combination with conventional surgery approaches (integrative approaches), where there have been promising outcomes. They include quicker resolution of infection, decreased necessity for repeated interventions, and better quality of life for the acute and chronic illness (Gv et al., 2024; Patil et al., 2023; Shreyes & MR, 2024).

### 6.2 Related Evidence

Ayurveda has also been effective in treating other wound conditions related to breast abscess, including diabetic ulcers and insufficient lactation. Sharma & Sharma (2022), Yadav et al. (2022) have associated the use of herbal formulations, dietary regulation and lifestyle modifications to the improvement of tissue healing and systemic balance. As evidence mounts in clinical trials and observational studies, Ayurveda also seems to play an important role occurring in infection and wound management in the broader picture, and it can present significant therapeutic benefits either as primary or adjunct treatments (Jude et al., 2022).

## 7. Comparison of Ayurvedic and Conventional Approaches

Breast abscess can be managed by Ayurvedic treatment as a complementary approach to the conventional surgical and medical care. Surgery is often required for immediate drainage; however, Ayurveda provides holistic and patient centered therapies that may help in healing, prevent complications and enhance overall outcomes (Gv et al., 2024; Warriar & Athulaya, 2022; Patil et al., 2023; KAUSHIK et al., n.d.; Vashishth & Bhola, 2021; Shreyes & MR, 2024; Naeem et al., 2012; Benson, 1989; Kataria et al., 2013).

### 7.1 Comparative Overview

The two approaches are different in philosophy, interventions, and outcomes. A side-by-side comparison of conventional and Ayurvedic approaches to breast abscess management is given in Table 7. For acute cases however, rapid drainage and control of infection still require conventional care based on surgical intervention and antibiotics. However, it may be painful, leave a scar, recur, and cost more. While, on the other hand, the treatments of Ayurvedic medicine are holistic methods to cure wound by herbal medicines and make appropriate lifestyle changes with less side effects and more patient's comfort. Although these are strengths, absence of standardized protocols and large evidence base have restricted widespread adoption of Ayurveda in mainstream practice.

**Table 7. Comparison of Conventional and Ayurvedic Approaches in Breast Abscess Management**

| Aspect | Conventional Approach | Ayurvedic Approach | References |
|---|---|---|---|
| Primary Goal | Drainage of pus, infection control | Wound healing, systemic balance | Gv et al., 2024; Patil et al., 2023 |
| Main Interventions | Surgery (I&D, aspiration), antibiotics | Herbal dressings, oils, decoctions | Warriar & Athulaya, 2022; KAUSHIK et al., n.d. |
| Side Effects | Scar, antibiotic resistance, recurrence | Minimal, lower recurrence | Naeem et al., 2012; Benson, 1989 |
| Recurrence Risk | Moderate to high (if incomplete drainage) | Reduced with holistic follow-up | Patil et al., 2023; Vashishth & Bhola, 2021 |
| Patient Experience | Often painful, needs wound care | More comfortable, individualized | Kataria et al., 2013; Shreyes & MR, 2024 |
| Cost-effectiveness | Variable, can be high | Generally lower | Malik et al., 2018; Ibrahim & Omoyibo, 2019 |
| Standardization | Well-defined protocols | Lacks standardization | Jude et al., 2022; Obiozor & Obiozor, 2025 |

### 7.2 Synergy and Limitations

Ayurveda can be used as an adjunct to surgery, especially in the post drainage phase, to promote healing, prevent recurrence and to support psychological well-being (Gv et al., 2024; Vashishth & Bhola, 2021). Some of its strengths are few side effects, more focus on long term health as well as inclusion of a special emphasis on diet and lifestyle intervention, hence, cost effective and easily accessible (Malik et al., 2018; Ibrahim & Omoyibo, 2019; Naeem et al., 2012). Nevertheless, as these treatments continue to be somewhat variable in their protocols and have a relatively small number of large, controlled trials, there are challenges to wider adoption (Jude et al., 2022; Obiozor & Obiozor, 2025).

Surgical intervention is an indispensable part of acute breast abscess, but Ayurveda provides valuable adjunctive therapies to reduce recurrence, promote healing, and increase patient satisfaction (Gv et al., 2024; Patil et al., 2023; Shreyes & MR, 2024). For the future, standardization and high-quality evidence are required to enhance the benefits of integrative model (Jude et al., 2022; Obiozor & Obiozor, 2025).

## 8. Challenges, Gaps, and Future Directions

The Ayurvedic management of breast abscess has a lot of promise but at present it is not accepted in mainstream clinical practice due to several limitations. Filling these gaps will ensure the provision of safe, standardised and effective care in order to maximize patient benefit.

### 8.1 Methodological and Evidence Gaps

A main constraint is this lack of trials (RCTs) in order to examine the role of Ayurvedic therapies in the treatment of breast abscess. Much of the published evidence is in the form of single arm studies, observational data, and case reports implying small scope for variance (Jude et al., 2022; Obiozor & Obiozor, 2025). Various formulations, dosages, and duration of therapy are applied in different protocols which makes them highly heterogeneous (Ahamed & Sahl, 2025; Patil et al., 2023). In addition, the long-term outcome data of such procedures including recurrence rates, functional recovery, and patient reported quality of life are insufficient (Jude et al., 2022).

**Table 8.1. Key Evidence Gaps in Ayurvedic Management of Breast Abscess**

| Evidence Gap | Description | References |
|---|---|---|
| Lack of RCTs | Most evidence is from case reports or small case series | Jude et al., 2022; Obiozor & Obiozor, 2025 |
| Heterogeneous protocols | Inconsistent use of formulations, dosing, and therapy durations | Patil et al., 2023; Ahamed & Sahl, 2025 |
| Insufficient long-term data | Few studies report recurrence rates or long-term healing outcomes | Jude et al., 2022 |
| Quality of life assessment | Limited measurement of patient-centered and functional outcomes | Ahamed & Sahl, 2025 |

### 8.2 Standardization and Safety Concerns

Standardizing Ayurvedic regimens is still a major barrier as many therapies are personalized to a specific constitution of the individual patients and are dependent on practitioner's clinical experience (Patil et al., 2023, Shreyes & MR, 2024). Moreover, the recording and reporting of adverse events are also restricted, which too raises the safety concerns even more, especially when the therapies are combined as Ayurvedic and conventional (Vashishth and Bhola, 2021; Shreyes and MR, 2024).

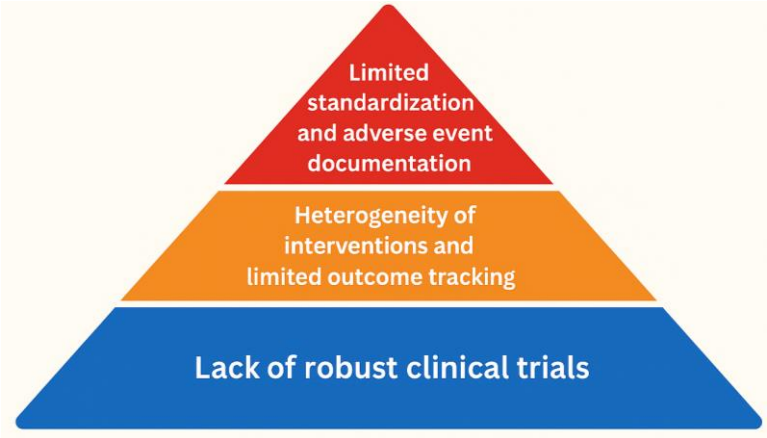


**Figure 4. Current Challenges in Research and Practice**

- Figure 4 shows the pyramid that visually ranks the key challenges in research and practice for Ayurvedic breast abscess care. The first barrier, according to the foundation, lies in the fact that clinical trials of these systems are currently not robust; the middle layer reveals heterogeneity; and the apex states that there is, overall, a lack of standardization, and adverse events are not properly documented, which represent incremental barriers.
- **Base (Largest):** Lack of robust clinical trials
- **Middle:** Heterogeneity of interventions, limited outcome tracking
- **Top (Smallest):** Limited standardization, insufficient adverse event documentation

### 8.3 Integration with Conventional Care

Ayurveda is still being integrated with conventional surgical and medical protocols, and there are few formal guidelines or consensus statements (Patil et al., 2023; Vashishth & Bhola, 2021; Shreyes & MR, 2024).

### 8.4 Recommendations for Future Research

To advance the field, future research should focus on:

- To design and conduct RCTs of large, multicenter size and using rigorous methodology (Jude et al., 2022)
- It also includes the work done in developing standardized intervention protocols for key Ayurvedic therapies (Patil et al., 2023; Shreyes & MR, 2024).
- Consistent documentation of adverse events and safety data (Vashishth & Bhola, 2021)
- Patient reported quality of life measures should be considered as core outcomes (Ahamed & Sahl, 2025; Patil et al., 2023).
- Collaborative research is promoted to integrate different conventional and Ayurvedic modalities (Patil et al., 2023; Shreyes & MR, 2024)

**Table 8 Priorities for Future Research in Ayurvedic Management of Breast Abscess**

| Priority | Description | References |
|---|---|---|
| Large-scale RCTs | Multicenter, randomized trials to establish efficacy and safety | Jude et al., 2022 |
| Protocol Standardization | Consensus on formulations, dosages, duration | Patil et al., 2023 |
| Safety and Adverse Event Reporting | Routine tracking and transparent reporting of all side effects | Vashishth & Bhola, 2021 |
| Quality of Life Outcomes | Use of validated, patient-centered metrics | Ahamed & Sahl, 2025 |
| Integrative Frameworks | Interdisciplinary research and care pathways | Patil et al., 2023 |

The Ayurvedic approach to care for breast abscess has promising outcomes, with the need for filling the evidence gaps, standardizing, and integrating it into routine care. Ayurveda will be established as a reliable adjunct or alternative in modern clinical practice with high quality research, safety monitoring and collaborative frameworks (Patil et al., 2023; Shreyes & MR, 2024; Jude et al., 2022).

## 9. Conclusion

Post surgical care of breast abscess is a promising adjunct to Ayurvedic management, which is a unique blend of individualized, holistic and non-invasive therapies. Because of the information provided in case reports and clinical observations, Ayurvedic modalities like medicated oils, herbal lepas, decoctions, etc.; dietary modifications; and local and internal cleansing procedures improve wound healing and prevent recurrence and are associated with high levels of patient satisfaction. In addition, these therapies may also offer some additional ancillary benefits, such as treating psychosocial concerns and each woman's function, which are commonly neglected in standard care. Although such observations are encouraging, there are considerable gaps in the available body of evidence. Large scale, RCTs to integrate Ayurveda with the mainstream surgical and medical care are lacking; treatment protocols have varied and longevity outcomes are not

well documented. There are still critical needs to develop robust, multicentre studies using standardized methodologies implemented to clearly measurable outcomes, and a thorough safety assessment. The collaboration between Ayurvedic and conventional practitioners will be needed to establish integrative care pathways which are both of evidence base and effective. The vision for the future of the breast abscess has the potential to balance the benefits with the strengths of both the conventional and Ayurvedic systems of treatment of this problem. An approach such as the one discussed has the capacity to improve clinical outcomes and address other dimensions of women's health and quality of life. Further research, interdisciplinary collaboration and standardization efforts are needed to realize the full potential of Ayurveda as a valuable partner in the modern care of breast abscess.

**References**


1. Gattani, S., & Kadam, M. C. (2025). Women's Health and Wellness: Part I.
2. Ghosh, S. The Impact of Lifestyle Diseases on Women: A Comprehensive Analysis. *Gender & Contemporary Issues*, 238.
3. Ba, D., Ba, S., & Md, M. (2023). What the world needs now: lifestyle medicine for all women. *American Journal of Lifestyle Medicine*, *17*(1), 97-107.
4. Pandey, R. P., & Mishra, S. R. Women's health and well-being: Pathways to prosperity.
5. Bhatti, A., & Ali, R. (2015). Lifestyle of working women in modern organization: Implications on health.
6. Padmaja, G., Pande, R., & Kaur, P. (2023). Women, aging, health and quality of life: A framework for action and policy formulations. *Asia Pacific Journal of Health Management*, *18*(2), 164-175.
7. Gv, P. J., Dasar, D., Biswas, S., & Kumar, A. (2024). An integrative ayurvedic approach in management of breast abscess–A case report. *Journal of Ayurveda and Integrative Medicine*, *15*(1), 100890.
8. WARRIAR, R. R., & ATHULAYA, K. (2022). Ayurvedic management of non-lactational breast abscess-Case Report. *Kerala Journal of Ayurveda*, *1*(1), 41-45.
9. Sharma, U., & Sharma, S. (2022). Stanyakshya (insufficient lactation) and its management by an Ayurveda formulation: A case report. *Journal of Indian System of Medicine*, *10*(3), 192-195.
10. Yadav, S., Mistry, H., & Dudhamal, T. S. (2022). Efficacy of Thumari oil in the management of Diabetic Ulcer–A case study. *Int. J. of AYUSH Case Reports. April-June*, *6*(2).
11. Jude, S., Varma AC, K., Kuttappan, S., & Amalraj, A. (2022). Ayurvedic and Traditional Systems of Medicine in Clinical Trials: An Overview.
12. Gaikwad, S. P. Successful Ayurvedic Management Of Bilateral Breast Abscess With Mental Depression-A Case Report.
13. Ahamed, H. P., & Sahl, M. (2025). Ayurvedic Management Of Sthana Vidradi (Lactational Breast Abscess) A Case Report.
14. Patil, D. D., Sawant, D., & Raut, D. (2023). Leads towards non-invasive Ayurveda interventions in Stana vidradhi (~ lactational breast abscess) management–An experience. *Journal of Ayurveda Case Reports*, *6*(3), 108-112.
15. Sinha, R. K., Sinha, M. K., Gaurav, K., & Kumar, A. (2014). Idiopathic bilateral male breast abscess. *Case Reports*, *2014*, bcr2013202169.
16. Aggarwal, A. K. M. (2024). Concurrent Bilateral Breast Abscess: Unveiling a Rare Coinfection of Salmonella typhi and Mycobacterium tuberculosis in Central India.
17. Ahmad, S., Amin, S., Alam, M., Tahir, R., Noreen, S., Khan, A. G., & Zareen, A. (2023). Frequency of breast abscess among lactating women presenting to ambulatory care of tertiary care hospital. *Pakistan Journal of Medical & Health Sciences*, *17*(03), 152-152.
18. Kaushik, A. M., Gujjarwar, S., & Kaushik, V. A Case Report On Ayurvedic Management Of Stana Vidradhi/Lactational Breast Abscess.
19. Arooj, S., Ahmad, M., Naeem, M., & Ahmad, M. (2022). Frequency of breast abscess among lactating women presented at tertiary care hospital, Peshawar. *Pakistan Journal of Surgery*, *38*(2).
20. Malik, S., Iqbal, S. H. A. Z. I. A., & Husain, S. (2018). Consequences of treatment in lactating and non-lactating women with breast abscess in surgical department of Jinnah hospital Lahore. *Pakistan J Med Heal Sci*.
21. Ibrahim, M., & Omoyibo, E. (2019). Management challenges of complicated lactational breast abscess in a tertiary health facility in a resource-constrained environment. *Nigerian Journal of Plastic Surgery*, *15*(1), 20-23.
22. Rahman, M. M. (2023). Recurrence of Recent Breast Abscesses—A Clinical Analysis. *The Planet*, *7*(02), 154-158.
23. Vashishth, R., & Bhola, S. (2021). Management Of Abscess Through Ayurveda: A Case Report.
24. Bates, K. (2021). Breast mastitis or abscess. *JAAPA*, *34*(11), 51-52.
25. O'Brien, C., Quinn, E., Murphy, M., Lehane, E., O'Leary, D. P., Livingstone, V., ... & Corrigan, M. A. (2020). Breast abscess: not just a puerperal problem. *The Breast Journal*, *26*(2), 339-342.
26. Shreyes, S. S., & MR, Y. B. (2024). An open label-single arm surgical trial on sootika stana vidradhi wsr breast abscess.: Shastra Karma in Stana Vidradhi. *Journal of Ayurveda and Holistic Medicine (JAHM)*, *12*(1).
27. Obiozor, A. C., & Obiozor, A. A. (2025). Case presentation: Breast abscess. *Ibom Medical Journal*, *18*(1), 221-223.
28. Jena, P., Duggal, S., Gur, R., Kumar, A., Bharara, T., & Dewan, R. (2019). Staphylococcus aureus in breast abscess-major culprit besides others. *Indian Journal of Medical Sciences*, *71*(1), 40-44.
29. Şimşek, G., Gündeş, E., Tekin, Ş., & Tavlı, Ş. (2014). Bilateral breast abscess caused by E. coli in a non-lactating woman: a rare case. The Journal of Breast Health, 10(3), 174.
30. Javed, M. U., Aleem, S., Asif, S. J., & Iqbal, J. (2017). Breast Abscess;: Comparison of Recurrence Rate Between Incision Drainage and Multiple Needle Aspiration. *The Professional Medical Journal*, *24*(01), 89-94.

31. Fardhus, M., Sharfuzzaman, A. M. S. M., Dewan, M. N., Kirttania, D. C., Hasan, A. S. A., & Rab, J. Z. (2018). Comparison between aspiration and incision and drainage of breast abscess. *Journal of Surgical Sciences*, *22*(1), 11-15.
32. Dixon, J. M. (2007). Breast abscess. *British Journal of Hospital Medicine (2005)*, *68*(6), 315-320.
33. Tan, S. M., & Low, S. C. (1998). Non-operative treatment of breast abscesses. *Australian and New Zealand journal of surgery*, *68*(6), 423-424.
34. Saeed, S., Naumani, A. R., Kazmi, A., Khalid, R., Ali, M., Naqi, S. A., & Khan, S. A. (2021). Comparison between needle aspiration versus incision and drainage in management of breast abscess. *Pakistan Journal of Surgery*, *37*(1).
35. Mallika, T., & Shukla, H. S. (2006). Point of technique-An effective method of drainage of puerperal breast abscess by percutaneous placement of suction drain. *Indian Journal of Surgery*, *68*(6), 330-333.
36. Eryilmaz, R., Sahin, M., Tekelioglu, M. H., & Daldal, E. (2005). Management of lactational breast abscesses. *The Breast*, *14*(5), 375-379.
37. Dener, C., & İnan, A. (2003). Breast abscesses in lactating women. *World journal of surgery*, *27*(2), 130-133.
38. Sheih, W. I., Suleri, M., & Kulsoom, M. (2009). Comparison of multiple needle aspirations and open surgical drainage in management of breast abscess. *Journal of Rawalpindi Medical College*, *13*(1).
39. Harish, S. K. (1997). The catheter drainage of breast abscesses: is it going to be the future treatment of choice for puerperal breast abscess disease?. *The Breast Journal*, *3*(6), 357-359.
40. Thirumalaikumar, S., & Kommu, S. (2004). Aspiration of breast abscesses. *Emergency Medicine Journal*, *21*(3), 333-334.
41. Naeem, M., Rahimnajjad, M. K., Rahimnajjad, N. A., Ahmed, Q. J., Fazel, P. A., & Owais, M. (2012). Comparison of incision and drainage against needle aspiration for the treatment of breast abscess. *The American Surgeon*, *78*(11), 1224-1227.
42. Benson, E. A. (1989). Management of breast abscesses. *World journal of surgery*, *13*, 753-756.
43. Kataria, K., Srivastava, A., & Dhar, A. (2013). Management of lactational mastitis and breast abscesses: review of current knowledge and practice. *Indian Journal of Surgery*, *75*, 430-435.
44. Hansen, P. B., & Axelsson, C. K. (2003). Treatment of breast abscess. An analysis of patient material and implementation of recommendations. *Ugeskrift for laeger*, *165*(2), 128-131.