

An Osteopathic Perspective on the Mastitis Spectrum

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KEYWORDS

Osteopathic manipulative treatment

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ABSTRACT

Mastitis spectrum disorders include a variety of presentations, including engorgement, plugged ducts, mastitis, and abscess formation. Lactational mastitis is a common occurrence in lactation, affecting up to 10% of patients. Common risk factors include oversupply, nipple trauma, and ineffective latch. Standard treatment includes continued breastfeeding with correction of latch techniques and supportive pain relief. Antibiotics are commonly used but indicated only in infectious presentations to prevent breast abscess formation.

OMT is a physiologically grounded adjunct in the management of mastitis spectrum disorders. Techniques such as myofascial release and lymphatic pumps can enhance lymphatic flow, reduce edema and swelling, and relieve pain. Early case-level evidence suggests that OMT is beneficial when integrated with standard care.

INTRODUCTION

Mastitis spectrum disorders encompass a range of inflammatory breast disorders, including engorgement, plugged ducts, infectious and noninfectious mastitis and progression to abscess formation or rare granulomatous mastitis.¹ Subclinical mastitis is defined by elevated milk somatic cell counts and altered sodium/potassium ratios without overt symptoms, representing a milder immunologically distinct entity within the spectrum. Nonlactational forms, such as idiopathic granulomatous mastitis and tuberculous mastitis, are rare but clinically relevant. The American College of Obstetricians and Gynecologists (ACOG) defines mastitis as localized painful inflammation of the breast, often with systemic symptoms, and notes it is one of the most common complications of breastfeeding.²

Prevalence estimates suggest that up to 10% of lactating women in the United States experience mastitis, with higher rates globally and the greatest incidence in the first month postpartum.^{3,4} Subclinical mastitis may affect up to 25% of breastfeeding women in some studies. Risk factors include oversupply, nipple injury, latch difficulties, and

skipped feedings.³ Mastitis is a leading cause of premature weaning due to pain and concerns about infection, highlighting the importance of effective management.

Current literature supports conservative management as first-line therapy for mastitis, including continued breastfeeding, ice, and nonsteroidal anti-inflammatory drugs (NSAIDs) for reducing inflammation and edema, analgesia with acetaminophen/paracetamol, and optimization of latch technique.^{2,5,6} Antibiotics are reserved for cases with persistent symptoms or evidence of infection, with penicillinase-resistant agents such as dicloxacillin or cephalexin recommended by ACOG.² Aggressive breast massage and excessive pumping are discouraged, due to risk of tissue trauma and exacerbation of inflammation.⁶ (See Academy of Breastfeeding Medicine [ABM] Clinical Protocol #36 for further recommendations.)

The role of OMT and manual therapies in mastitis is an area of growing interest but remains underinvestigated. Systematic reviews and case series suggest that gentle anatomically informed manual therapy may reduce acute breast pain and improve symptoms of engorgement, plugged ducts, and mastitis.⁷⁻¹⁰ Techniques that respect the fascial architecture, vascular supply, and lymphatic drainage pathways of the breast are considered safe when performed appropriately.

OMT for Mastitis

Functional anatomy provides the basis for OMT. The breast is a complex structure composed of layered fascial compartments situated anterior to ribs 2-6, with

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lateral extension into the axilla.¹¹ It is enclosed within a fascial “pocket” formed by the superficial fascia, which includes both superficial and deep layers that surround the breast parenchyma both anteriorly and posteriorly.¹² This fascial envelope creates distinct compartments of adipose— superficial and deeper layer—both traversed by retinacula cutis (Cooper’s ligaments).¹³ The breast attaches to the chest wall primarily through an “anchoring ring,”

FIGURE 1: Structure of the female breast.²¹

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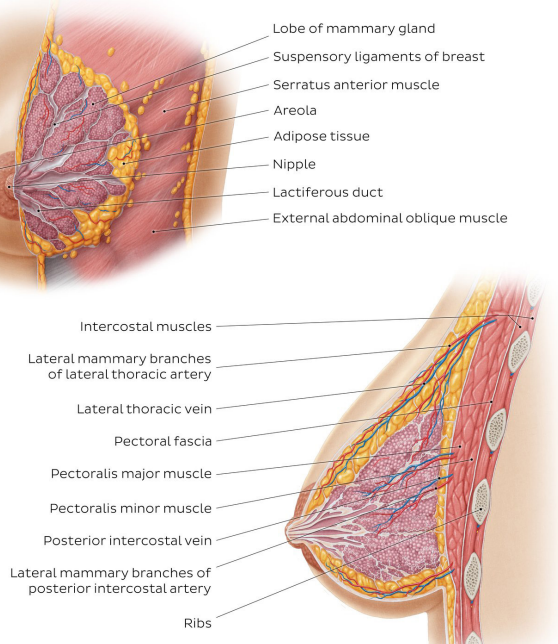
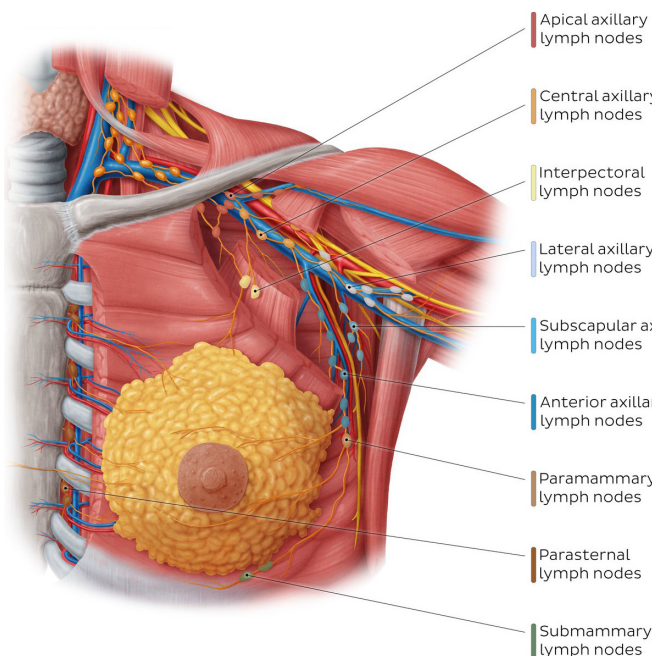


FIGURE 2: Lymphatic drainage of the breast.²²

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or circummammary ligament, at its periphery where the superficial fascia blends with the deep fascia. A horizontal septum arises from the pectoral fascia along the fifth rib and extends toward the nipple, serving as a conduit for the primary blood supply and innervation to the nipple-areola complex.¹² Arterial supply is derived predominantly from the internal thoracic artery, with additional contributions from the lateral thoracic and anterior intercostal arteries.¹⁴ The glandular tissue is organized into lobes, each containing a central duct and peripheral branches ending in terminal ductal lobular units (TDLUs), which exhibit consistent three-dimensional architecture.¹⁵

Approximately 75% of breast lymphatic drainage occurs via the axillary nodes, with the remainder directed toward the internal mammary nodes.^{14,16} Systemic edema and lymphatic congestion associated with pregnancy profoundly affect the breasts, in part because it is one of the few body regions lacking an intrinsic lymphatic pump.¹⁷ Unlike the extremities or diaphragm, routine movement does not effectively facilitate lymphatic or venous return from the breast, rendering it particularly susceptible to fluid stasis and dysfunction. Understanding these anatomic and physiologic features highlights the rationale for OMT techniques aimed at optimizing fascial mobility, lymphatic drainage, and vascular flow within the breast.

OMT techniques relevant to mastitis include gentle myofascial release, lymphatic pump techniques, and targeted soft tissue mobilization. Myofascial release addresses fascial restrictions and may improve tissue mobility and lymphatic drainage of the breast. Lymphatic pump techniques, such as thoracic and pedal pumps, are designed to enhance lymph flow and reduce stasis, which is particularly important given the breast’s lack of inherent lymphatic pump.¹⁷ Soft-tissue mobilization over the chest wall and axilla can facilitate vascular and lymphatic return, while avoiding aggressive massage that may worsen inflammation.^{6,18}

Physiologic effects of OMT and manual therapy are increasingly supported by mechanistic studies. OMT has been shown to induce rapid changes in circulating cytokines (interleukin [IL]-8, monocyte chemoattractant protein-1 [MCP-1], granulocyte colony-stimulating factor [G-CSF]) and mobilize dendritic cells, suggesting immunomodulatory effects.¹⁹ Manual therapy may also evoke neurophysiologic, neurovascular, and biomechanical responses, including modulation of pain pathways, reduction of local edema, and improved tissue perfusion. These effects are hypothesized to contribute to symptom relief and improved breast function in mastitis spectrum disorders.

Recent clinical reports provide further context for the application of manual therapy and OMT in mastitis spectrum disorders. Jackson and Loveless describe a

single case of recurrent mastitis managed with targeted OMT, emphasizing anatomic precision and gentle fascial and lymphatic techniques.⁸ Their protocol resulted in symptom resolution and prevention of recurrence. Engel et al. presented a case series (n=11) using the Breast Inflammatory Symptom Severity Index, demonstrating that individualized manual therapy was associated with improvement in pain, erythema, and functional scores.⁷ No adverse events to treatment were reported. These findings support the utility of OMT as an adjunct to standard care, though evidence remains limited.

In summary, OMT for mastitis spectrum disorders should be anatomically precise, targeting fascial, vascular, lymphatic, and neural structures. Techniques should be gentle and tailored to the individual, with the goal of improving lymphatic and vascular flow to reduce inflammation and support continued breastfeeding. While preliminary evidence and mechanistic studies are promising, robust randomized controlled trials are needed to establish efficacy and safety in mastitis and related breast disorders.²⁰

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