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AYURVEDIC MANAGEMENT OF MAMMARY DUCT ECTASIA (STANA SHOTHA): A CASE REPORT

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ABSTRACT

Background: Mammary duct ectasia is a benign disorder characterized by dilatation and inflammation of larger lactiferous ducts. It commonly presents with nipple discharge, breast tenderness and periareolar inflammation and may mimic breast malignancy. Persistent symptomatic cases may require surgical duct excision. **Case Presentation:** A 46-year-old premenopausal woman presented with spontaneous, persistent greenish serous discharge from the right nipple with breast tenderness for two months. Previous intermittent treatment with anti-inflammatory drugs and antibiotics provided no satisfactory relief. Examination revealed localized right breast erythema and tenderness without a palpable mass, abscess, fistula, nipple retraction or lymphadenopathy. Thyroid function and serum prolactin were normal. Sonomammography showed mild bilateral retroareolar duct ectasia (3–4 mm) containing anechoic fluid, without intraductal mass or vascularity, suspicious lesion or significant axillary lymphadenopathy (BI-RADS 2). Cone excision was advised; however, the patient opted for Ayurvedic treatment. **Intervention:** Shodhan and Shaman Chikitsa were administered. Raktamokshana was performed by Jaloka Avacharana using two leeches locally. Shaman Chikitsa comprised Sukshmatriphala 500 mg twice daily and Gandhak Rasayan 500 mg twice daily for 21 days. **Outcome:** Discharge and erythema resolved within 7 days, while pain and tenderness resolved by day 15. At 21 days, complete clinical resolution was noted. Follow-up sonomammography showed no significant ductal dilatation or intraductal lesion (BI-RADS 1). No recurrence was observed at 3, 6 and 12 months. **Conclusion:** Ayurvedic treatment with Jaloka Avacharana and Shaman Chikitsa resulted in complete and sustained clinical and radiological resolution in this case. Larger prospective studies are required to establish its efficacy.

KEYWORDS: Mammary duct ectasia; Stana Shotha; nipple discharge; Ayurveda; Jaloka Avacharana; Raktamokshana; Sukshmatriphala; Gandhak Rasayan.

INTRODUCTION

Mammary duct ectasia is a benign, non-proliferative disorder primarily involving the larger lactiferous ducts of the breast. It is characterized by dilatation of the ducts with variable degrees of periductal inflammation and fibrosis.[1-3] The condition predominantly affects the retroareolar ducts and may occur around the perimenopausal period.[14]

The pathogenesis of mammary duct ectasia is not completely understood. Ductal dilatation may be associated with accumulation of cellular debris and secretions, changes in the duct wall and subsequent periductal inflammation and fibrosis.[1-3] Patients may present with nipple discharge, which can be greenish, yellowish, brown or thick, together with breast tenderness, nipple retraction or a palpable periareolar mass.[14]

Mammary duct ectasia may clinically and radiologically mimic carcinoma breast. Therefore, persistent or pathological nipple discharge requires appropriate

clinical assessment and breast imaging, with tissue diagnosis when indicated.[45]

Management is generally individualized according to symptoms and complications. Conservative measures may be adequate in selected patients, while persistent symptomatic disease or complicated cases may require surgical excision of the involved duct or ducts.[25] Complete excision may, however, be associated with cosmetic or structural defects, whereas inadequate excision may result in persistence or recurrence.[26]

In Ayurveda, inflammatory conditions are broadly described under the concept of Shotha. Disturbance of normal microchannel function, described as Srotodushti, is considered an important component in the pathogenesis of inflammatory conditions.[7] Involvement of the breast with inflammatory changes may therefore be clinically correlated with Stana Shotha.

The present case describes the clinical and radiological response to an Ayurvedic treatment protocol consisting of Shodhan and Shaman Chikitsa in a patient with symptomatic mammary duct ectasia who preferred to avoid surgical intervention.

CASE REPORT

A 46-year-old premenopausal female presented to the outpatient department with complaints of spontaneous discharge from the right nipple, breast tenderness and breast discomfort for two months. The discharge was persistent, serous and greenish in colour and was unrelated to lactation or consumption of any drugs. The patient had taken anti-inflammatory drugs and antibiotics intermittently before presentation, without satisfactory relief.

On examination, both breasts were symmetrical in size and shape. The right breast showed localized redness over the upper outer quadrant associated with tenderness. There was no palpable breast mass and no evidence of abscess, fistula, scarring or dilated superficial veins. The nipple and areola appeared normal externally. On gentle expression of the nipple, greenish serous discharge was observed and was accompanied by localized pain. Axillary, supraclavicular and internal mammary lymph nodes were not palpable.

Thyroid function tests and serum prolactin levels were performed as part of the evaluation and were within normal limits.

Sonomammography was done and revealed: “Mild bilateral retroareolar duct ectasia, with ducts measuring up to 3–4 mm, containing anechoic fluid. No intraductal mass or vascularity. No suspicious solid/cystic lesion or significant axillary lymphadenopathy. BI-RADS 2 – Benign finding.”

Based on the clinical presentation and sonomammographic findings, a diagnosis of symptomatic mammary duct ectasia of the right breast was made.

The patient subsequently consulted a general surgeon and was advised cone excision of the involved ducts as definitive treatment. However, the patient was anxious about undergoing surgery and opted for Ayurvedic treatment instead.

Ayurvedic Assessment and Treatment

The condition was clinically correlated with Stana Shotha, and a combined approach of Shodhan and Shaman Chikitsa was planned.

For Shodhan Chikitsa, Raktamokshana was performed by Jaloka Avacharana. Two Jaloka were applied locally—one near the nipple and another at the root of the inflamed duct corresponding to the area of maximum tenderness.

Shaman Chikitsa consisted of Tab. Sukshmatriphala 500 mg twice daily for 21 days and Tab. Gandhak Rasayan 500 mg twice daily for 21 days.

Both medicines were administered according to the treatment protocol documented in the case.

Possible Mechanism of Action of the Ayurvedic Interventions

Jaloka Avacharana: Jaloka Avacharana is a traditional form of Raktamokshana using medicinal leeches. Modern studies have demonstrated that leech saliva contains several biologically active substances, including hirudin, eglins, bdellins, hirustasin and other compounds with anticoagulant, anti-inflammatory and analgesic properties.[89] Hirudin primarily inhibits thrombin, while components such as eglin C and bdellins may contribute to local anti-inflammatory and protease-inhibitory effects.[89]

Gandhak Rasayan: Gandhak Rasayan is a traditional sulfur-containing Ayurvedic formulation used in various inflammatory and infectious conditions. In Ayurvedic pharmacology, Gandhaka is traditionally described with properties including Krimighna and Rasayana activity. Experimental literature on sulfur-containing Ayurvedic preparations and Gandhaka-based formulations suggests potential antimicrobial and anti-inflammatory activity.[10] Such properties may theoretically contribute to modulation of the inflammatory component of the disease. However, direct clinical evidence for Gandhak Rasayan in mammary duct ectasia is currently limited.

Sukshmatriphala: Sukshmatriphala is a Triphala-based Ayurvedic formulation. Triphala comprises Emblica officinalis (Amalaki), Terminalia chebula (Haritaki) and Terminalia bellirica (Bibhitaki). Experimental and review literature has demonstrated antioxidant,

antimicrobial and anti-inflammatory properties associated with Triphala and its polyphenolic constituents.[11] These properties may contribute to modulation of inflammatory processes and tissue recovery. The exact pharmacological mechanism of Sukshmatriphala in mammary duct ectasia, however, remains to be established.

Outcome

Clinical improvement was observed progressively during treatment.

Day 7: Greenish nipple discharge and localized breast redness completely resolved.

Day 15: Breast tenderness and pain resolved completely.

Day 21: Clinical assessment showed complete resolution of all presenting signs and symptoms.

Post-treatment sonomammography revealed: "No significant ductal dilatation or intraductal lesion. No focal cystic/solid lesion or other suspicious sonographic abnormality. BI-RADS 1 – Negative study."

The patient was subsequently followed at 3 months, 6 months and 1 year after completion of treatment. No recurrence of nipple discharge, pain, tenderness or redness was reported during the follow-up period.

DISCUSSION

Mammary duct ectasia is a benign disorder of the larger lactiferous ducts characterized by ductal dilatation with variable periductal inflammatory and fibrotic changes.[1-4] It predominantly involves the retroareolar ducts and may present with nipple discharge, tenderness, nipple retraction or a palpable periareolar abnormality.[14]

The present patient was a 46-year-old premenopausal woman who presented with persistent spontaneous greenish nipple discharge associated with localized breast tenderness, pain and erythema. Greenish nipple discharge is a recognized clinical manifestation of mammary duct ectasia.[1] The absence of a palpable mass, abscess, fistula, nipple retraction or regional lymphadenopathy suggested a non-complicated clinical presentation.

Evaluation of pathological nipple discharge is important because benign ductal disease may clinically mimic breast malignancy.[14] In the present case, thyroid function and serum prolactin were normal, making an endocrine cause for the nipple discharge less likely. Sonomammography demonstrated mild bilateral retroareolar duct ectasia with ducts measuring 3–4 mm containing anechoic fluid, without an intraductal mass or vascularity. There was no suspicious solid or cystic lesion or significant axillary lymphadenopathy, and the initial examination was categorized as BI-RADS 2, benign finding.

The patient had previously received anti-inflammatory drugs and antibiotics intermittently without satisfactory relief. Surgical consultation subsequently recommended cone excision of the involved ducts. Surgical treatment is an established option for persistent symptomatic duct disease, particularly when symptoms are refractory or when complications develop.[25] The patient, however, was reluctant to undergo surgery and elected to undergo Ayurvedic treatment.

From an Ayurvedic perspective, the inflammatory manifestation was clinically correlated with Stana Shotha. The treatment protocol consisted of Shodhan Chikitsa through Jaloka Avacharana and Shaman Chikitsa using Sukshmatriphala and Gandhak Rasayan.

Jaloka Avacharana is a recognized form of Raktamokshana in Ayurveda. Contemporary research has demonstrated multiple biologically active components in leech saliva with anticoagulant, anti-inflammatory, analgesic and platelet-inhibitory properties.[89] Hirudin inhibits thrombin, while eglins, bdellins and hirustasin have protease-inhibitory and anti-inflammatory effects.[89] These pharmacological properties provide a plausible biological basis for the observed improvement in local inflammatory symptoms, although a direct causal relationship cannot be established from this case.

Gandhak Rasayan is traditionally used in Ayurveda for conditions involving inflammatory and infectious components. The proposed antimicrobial and anti-inflammatory properties of sulfur-containing Ayurvedic preparations may have contributed to modulation of the local inflammatory process.[10] However, direct clinical evidence regarding its efficacy in mammary duct ectasia is presently limited.

Sukshmatriphala contains Triphala as its principal herbal component. The three constituents of Triphala have demonstrated antioxidant, antimicrobial and anti-inflammatory activities in experimental and review literature.[11] These properties may have contributed to reduction of inflammatory symptoms and tissue recovery in the present case, although the precise mechanism remains speculative.

The response to treatment was progressive and clinically significant. Greenish nipple discharge and breast redness resolved completely within seven days, while tenderness and pain resolved by day 15. At 21 days, complete clinical resolution was documented.

Importantly, post-treatment sonomammography also demonstrated objective radiological improvement. The previously documented ductal dilatation was no longer significant, with no significant ductal dilatation or intraductal lesion, no focal cystic or solid lesion and no other suspicious sonographic abnormality. The post-treatment study was categorized as BI-RADS 1, Negative study. Thus, the clinical improvement was

accompanied by normalization of the documented sonographic findings.

The patient remained asymptomatic during follow-up at three months, six months and one year, with no recurrence reported. Studies of related periductal inflammatory breast disease have reported recurrence and treatment failure with some treatment approaches, emphasizing the importance of longer follow-up.[12]

The present case has several limitations. It is a single case report and therefore cannot establish treatment efficacy or causality. Furthermore, the individual contribution of Jaloka Avacharana, Sukshmatriphala and Gandhak Rasayan cannot be determined because they were administered as a combined treatment protocol. The Ayurvedic treatment should therefore not be interpreted as having been proven equivalent or superior to surgical management.

Nevertheless, the complete clinical response, normalization of post-treatment sonomammography and absence of recurrence during one year of follow-up provide an encouraging observation warranting further investigation. Prospective studies with larger sample sizes, standardized treatment protocols, objective pre- and post-treatment imaging, validated clinical outcome measures and longer follow-up are required to determine the therapeutic efficacy and reproducibility of this approach.

CONCLUSION

Mammary duct ectasia is a benign inflammatory disorder of the larger lactiferous ducts that may present with persistent nipple discharge, pain, tenderness and breast erythema and may mimic malignant breast disease. Appropriate clinical and radiological evaluation is therefore essential.

In the present case, a 46-year-old woman with symptomatic mammary duct ectasia was treated with a combination of Jaloka Avacharana as Shodhan Chikitsa and Sukshmatriphala with Gandhak Rasayan as Shaman Chikitsa. Nipple discharge and breast redness resolved completely within seven days, while pain and tenderness resolved by 15 days. At 21 days, complete clinical resolution was documented. Post-treatment sonomammography demonstrated resolution of the previously noted ductal dilatation, with no intraductal lesion or other suspicious abnormality and a BI-RADS 1 – Negative study.

No recurrence was reported during follow-up at three months, six months and one year.

This case suggests a potential role for Ayurvedic management in selected patients with symptomatic mammary duct ectasia. However, larger prospective controlled studies are required to establish its efficacy, safety, reproducibility and long-term outcomes before it can be recommended as an alternative to established conventional treatment.

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