

## Plasma Cell Mastitis mimicking as carcinoma of the breast: A case report and review of the literature

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**Abstract:** Plasma Cell Mastitis (PCM) is an uncommon chronic inflammatory disease of the breast in middle aged women. Patient presents with symptoms of acute mastitis with an abscess or abscesses. Later persists as diffuse lump with nipple discharge. Discharge can be milky, purulent or bloody with axillary lymphadenopathy. Clinically it is very difficult to differentiate from carcinoma (Ca) breast. Microcalcification on mammography makes further confusion in differentiating from carcinoma.

The treatment is wide excision and recurrence is common as it is a diffuse inflammatory mass. Total mastectomy is needed when lump is large, to ovoid local recurrence. Total mastectomy for a benign lesion is not acceptable as there is psychological trauma to patient. Two cases were reported in the literature with shock and toxemia postoperatively. Two cases presented as comedo type of adenocarcinoma.

We had a similar case of breast lump where there was difficulty in diagnosing the case. The clinical course in our case was similar to cases described in the literature. Therefore we are presenting this case with review of literature keeping rarity of the disease, difficulties in the diagnosis and treatment.

**Key words:** Carcinoma (Ca), Fine Needle Aspiration Cytology (FNAC), Histopathological examination (HPE), Plasma Cell Mastitis (PCM), Ultrasonography (USG).

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### I. Introduction:

Plasma cell mastitis is rare in clinical practice. PCM presents as painful inflammatory lump. The skin is thick and adherent to breast along with nipple retraction and nipple discharge. Sometimes, the discharge is bloody, makes the clinician to misdiagnose the case as Ca. breast [1,2]. In acute stage, there can be large abscess in the breast which is treated by incision and drainage. But inflammation persists as a chronic lump with multiple abscesses, healed or persisting sinuses [3]. Acute stage of PCM can be mistaken as inflammatory carcinoma of the breast and chronic stage as diffuse ductal carcinoma of the breast. Other differential diagnosis includes tuberculosis of the breast and periductal mastitis.

The definite treatment is wide excision and recurrence is common as it is a diffuse inflammatory mass. Total mastectomy is needed when lump is large, to ovoid local recurrence. Two cases were reported in the literature with shock and toxemia post operatively [4]. Two cases presented as comedo type of adenocarcinoma [5].

Histologically, the lesion is likely to be mistaken as carcinoma breast as it is composed of fibro fatty tissue with numerous dilated ducts and areas of induration resembling carcinoma [1]. The striking feature of PCM is, there can be an acute or sub acute inflammatory exudate consisting of chiefly plasma cells. Exudate is prominent around the ducts and acini. There are plenty to moderate infiltration of giant cells of foreign body type. Histological picture may mimic tuberculosis and giant cells, epitheloid cells are arranged in tubercles. There is no caseation in PCM unlike tuberculosis.

### II. Case report:

A 35 years old female presented with diffuse lump in the outer quadrant of the left breast with mild pain and tenderness. Patient gave h/o bloody discharge from the nipple. No h/o loss of weight or loss of appetite and evening rise of temperature.

She weaned her child one year back. Four months back she developed breast abscess which was incised and drained. All acute symptoms subsided but mild pain and tenderness persisted. Later she developed two small abscesses which were burst, one healed completely and other persisted as small sinus.



Figure 1: clinical picture of the breast with plasma cell mastitis

On examination left breast was larger than the right. Diffuse lump was palpable in the outer quadrant of the left breast, measuring 10X8 cm in size. The lump was variable in consistency from soft, firm to hard. Lump was moving with the breast. Nipple and areola complex is deeply pigmented than the opposite breast. Left nipple was large, retracted and pulled towards the lump. Skin over the breast was thickened with areas of redness and an area of Peau-de-orange appearance (Fig. 1.). Clinically axillary lymph nodes were not palpable. Our provisional diagnosis was tuberculosis of the breast while keeping the possibility of carcinoma breast.

FNAC of the lump showed scanty cellularity with an occasional tight cluster of ductal cells in hemorrhagic background suggestive of fibroadenosis.

USG of the breast showed heterogeneous cystic lesion with thickened walls with peripheral vascularity in 2-3'o clock position. Subcutaneous edema noted. Multiple small nodes noted with preserved hila in left axilla suggestive of breast abscess.

After general anesthesia, lumpectomy was done with 5 cm wide margin. Post operative period was uneventful (no shock or toxemia). Specimen sent for HPE.

Cut section of the lump showed four whitish necrotic areas varying in size from 1×1cm - 1×0.5 cm. On microscopic examination, there is destruction and infiltration of lobules with plasma cells, polymorphs, lymphocytes and few foamy macrophages. Occasional eosinophils and many giant cells are also seen. (Fig. 2)

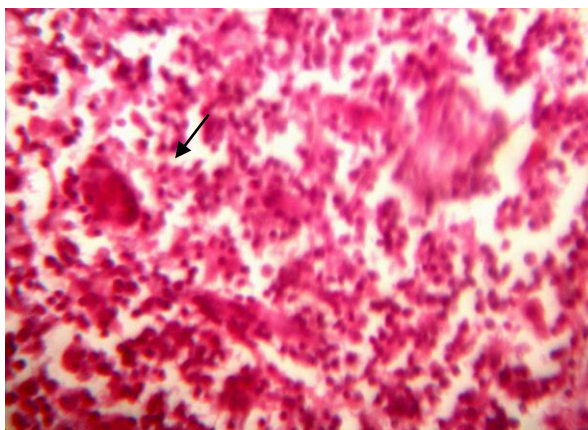


Figure 2: Histopathologic appearance of Plasma cell mastitis. Foreign body giant cell is shown (arrow)

Patient was followed for 3 months and she developed a small sinus on the suture line which was healed on antibiotic coverage.

### III. Discussion:

Plasma cell mastitis (PCM) is a distinct entity of mastitis. It is also known as granulomatous mastitis, was first described by Cheatele and Cutler [6]. It is a non bacterial inflammatory benign breast disease. PCM is typically found in women in second to fourth decades, several years (average interval, 4 years) after cessation of lactation. But according to current report, the reported age incidence is from pubertal to menopausal women.[7-10] The etiology is obscure. Rodman and Ingleby (1939) suggested that the disease may be due to action of enzymes that split milk like substances secreted in the non lactating women. It is thought that the aseptic inflammation of the breast is due to extravasation of intraductal secretions into periductal connective tissue. [2]

Inverted nipple is thought to be an etiological factor where the lactiferous ducts get stenosed leading to ductal obstruction. Deposition of milk in the mammary duct could stimulate the autoimmune response followed by pathological changes in the different part of the mammary gland [11]

PCM presents with acute onset of breast tenderness, redness, and nipple discharge, followed by a hard palpable mass which often remains. The skin becomes thick, adherent to the breast along with nipple retraction and nipple discharge. Sometime the discharge is bloody which makes it difficult to differentiate from carcinoma breast [12-15]. Acute stage of PCM may be mistaken as inflammatory carcinoma of the breast and chronic stage as diffuse ductal carcinoma of the breast (Cutler, 1949). Because of its acute presentation, followed by chronic phase of inflammation the mass may likely to be mistaken as tubercular mastitis or periductal mastitis as a differential diagnosis.

In mammography, calcifications are thick, linear, rod-like or cigar-shaped measuring up to 10 mm long (macroscopic). They tend to be bilateral, often symmetrical in distribution and oriented with long axes pointing toward the nipple. Branching sometimes may be seen. Presence of microcalcification confuses the surgeon to differentiate PCM from ductal or lobular carcinoma of the breast.

#### 1.1. Pathology:

PCM may be diagnosed by fine-needle aspiration (FNAC), but the hyperplastic ductal epithelium should not be mistaken for carcinoma. Histologically, the section is composed of fibro fatty tissue with large, dilated ducts and areas of induration. The exudate contains thick, tan-yellow colored secretion; represent calcification of inspissated secretions in or immediately adjacent to ectatic ducts and acini. The most characteristic finding is an acute or subacute inflammatory exudate consisting chiefly of plasma cells. Giant cells are usually foreign body type and are sometimes seen surround a mass of acicular crystals, forming a radiating network – the Giant rosettes of Mathew Stewart. The histological appearance may be similar to that in tuberculosis. Giant cells and epithelioid cells may be arranged as in the tubercle, but there is no caseation.

#### 1.2. Treatment:

Initial antibiotic therapy is routinely given, though there is no bacterial growth from collected specimen of exudates. But definitely acute stage subsides with incision and drainage under antibiotic coverage for a period of two to three weeks.

The definitive treatment is wide excision. Complete remission is not guaranteed after surgery, since it is a diffuse inflammatory mass.[16] Some inflammatory portion is left over which recurs sooner or later. It is difficult to decide, how wide the amount of margin is required to prevent the local recurrence. In such circumstances total mastectomy is done particularly when lump is large and to prevent local recurrence. Patient will have a psychological trauma after total mastectomy. This tricky situation puts the surgeon in dilemma whether to go for wide excision or complete mastectomy.

Wide excision followed by corticosteroids in reducing doses for a variable period is giving encouraging results. Evidences showed that the disease recurred once the corticosteroid therapy is discontinued. However, the paper claimed the disease is successfully treated with high dose of corticosteroid i.e., prednisolone at 40mg/day (0.8mg/kg/day) [17]. This is still under evaluation; so far the definite data is not available.

### IV. Conclusion:

Plasma Cell Mastitis (PCM) is an uncommon chronic inflammatory disease of the breast in middle aged women. Patient presents with symptoms of acute mastitis with an abscess or multiple abscesses. Later, it persists as diffuse lump with nipple discharge after initial antibiotic therapy and incision and drainage. It is difficult to differentiate from carcinoma or tubercular mastitis of the breast. Wide excision is the treatment of the choice after initial antibiotic therapy. Total mastectomy is needed for recurrent lesions however; post operative corticosteroid therapy is encouraging and is still under evaluation.

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