CASE REPORT

Hydatid cyst: unusual presentation as 'breast lump'

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SUMMARY

Hydatid cyst in the breast is rare. We report a case of hydatid cyst in the breast in a 30-year-old Indian rural woman who presented with a lump in her left breast. MRI findings showed a cystic lesion in the breast. Histopathological examination showed features consistent with hydatid cyst with surrounding adherent pericystic breast tissue showing fibrocollagenisation and inflammatory response. ELISA for echinococcal antigen was also found to be positive. This case emphasises that preoperative diagnosis of hydatid cyst in the breast is difficult and often missed as the breast is a rare site of echinococcal infection and clinical and imaging findings are wide and non-specific. Cytological diagnosis by fine-needle aspiration may not always be possible. Therefore, hydatid cyst in the breast should always be considered in the differential diagnosis of a breast lump and histopathological confirmation is necessary for early and appropriate treatment.

BACKGROUND

Hydatid disease is commonly caused by the tape-worm *Echinococcus granulosus*. The most common location of infection is the liver (75%) followed by lungs (15%), with only 10% occurring in other parts of the body.^{1–3} Involvement of the breast in the echinococcal infection is usually a part of disseminated hydatidosis. Primary breast infection is extremely rare and accounts for only 0.27% cases.^{1 2 4} There are only few reported cases in the

literature from the Indian subcontinent.^{5 6} We report a case of an isolated primary hydatid cyst of the breast in a 30-year-old Indian rural woman who presented with a lump in her left breast.

CASE PRESENTATION

A 30-year-old Indian rural woman presented to surgery outpatient department with a lump in her left breast for the past 6 months. There was no history suggestive of pain, fever, nipple discharge, systemic infection or family history of breast cancer. Clinical examination revealed a well-defined, soft-to-firm, non-tender, slightly mobile lump, measuring about 3.5×3 cm and located in the upper and outer quadrant of her left breast. There was no axillary lymphadenopathy. Fine-needle aspiration cytology (FNAC) of the lump yielded only few clusters of benign ductal epithelial cells along with few scattered chronic inflammatory cells. MRI showed a cystic lesion, measuring 3.7×3.3×3.5 cm in the upper and outer quadrant of the left breast with adherent peripheral solid breast tissue component, measuring 2×1.8 cm. The cystic lesion appeared homogeneously hyperintense on T2-weighted and STIR (short T1 inversion recovery) MR sequences, with solid component showing hypointensity (figure 1A,B). Superficially, the lesion appeared to compress the subcutaneous tissue of the breast without any evidence of infiltration or invasion. The overlying skin was unremarkable. The right breast appeared normal with maintained fibroglandular

Figure 1 (A and B) T2-weighted and STIR (short T1 inversion recovery) MRI showing hyperintense cystic lesion (arrow) along with adherent, peripheral adherent solid hypointense (double arrow) component in the left breast, respectively.

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Figure 2 Gross specimen showing cream white shiny membranous wall of the hydatid cyst (after drainage of cyst content) with adherent breast tissue.

pattern. Ultrasonography and CT of the patient's abdomen and chest X-ray were normal. The cyst was excised without rupture with surrounding breast tissue and was submitted for the final diagnosis. Gross examination of the excised tissue showed cream white shiny membranous cyst wall filled with watery fluid, adherent to surrounding breast tissue (figure 2). Histopathological examination of H&E stained sections showed cyst wall consisting of lamellated membrane with parallel striations and granular debris along with adherent pericystic fibrocollagenous breast tissue showing inflammatory cell infiltrate (figures 3 and 4). Based on clinical, MRI and histopathological findings, a diagnosis of isolated primary hydatid cyst of the breast was made, with inflammatory response of surrounding breast tissue, resulting in the formation of breast lump. Serological test ELISA for echinococcal antigen was performed and was found to be positive, further affirming the hydatid origin of the cyst.

INVESTIGATIONS

Routine haematological, urine examination and biochemical tests of the patient were normal.

Figure 3 Section showing lamellated membranous cyst wall (arrow) with adherent fibrocollagenised breast tissue (H&E, x50).

Figure 4 Higher magnification showing lamellations of the cyst having parallel striations (arrow) and granular debris, consistent with echinococcal infection (H&E, x500).

DIFFERENTIAL DIAGNOSIS

Differential diagnosis in the present case included other benign cystic diseases of the breast, fibroadenoma, phyllodes tumour and breast abscess, distinguishable from hydatid cyst by histopathological examination.

OUTCOME AND FOLLOW-UP

Postoperative recovery of the patient was uneventful. The patient was kept on albendazole (400 mg twice a day) for 28 days and did not have any recurrence during the past 4 months follow-up.

DISCUSSION

The findings in the present case were diagnostic of hydatid cyst, presenting as breast lump. Hydatid disease is commonly caused by *E granulosus*, a tapeworm from the cestodean class. Although *E granulosus* is the most common species, *Echinococcus multilocularis* and *Echinococcus vogeli* also infect humans. Adult species live in the intestine of infected dog, which is the definite host. The *Echinococcus* eggs are disposed in faeces and are swallowed by intermediate hosts such as sheep, goats and humans. Humans are infected either through direct contact with dogs or by intake of contaminated food or vegetables with eggs. The larvae of eggs then open in the intestines, penetrate into the mucosa and get access to blood and lymphatics and are carried elsewhere in the body, where they are converted into cysts.¹⁻⁴ The most common site of infection is the liver (75%) followed by lungs (15%), with only 10% occurring in other parts of the body.¹⁻³ Hydatid cyst in the breast is rare (0.27%), even in endemic areas it is usually missed to be considered in the differential diagnosis of breast lump. Involvement of the breast is usually a part of disseminated hydatidosis rather than the primary site of infection. The presence of isolated primary hydatid cyst in the breast without involvement of liver, lungs or any other organ, as was observed in the present case, is extremely rare.

Preoperative diagnosis of hydatid cyst in the breast is often difficult as the breast is a rare site of echinococcal infection. Moreover, clinical and imaging findings are often wide and may overlap or resemble other benign cystic diseases of the breast, fibroadenoma, phyllodes tumour, breast abscess or even

inflammatory carcinoma and mastitis.⁷ The presence of a thick, laminated wall with a thin layer of calcification within the lesion or the presence of floating membranes, daughter cysts and vesicles on imaging suggests hydatid cyst. However, in the present case these features were not appreciable. Although MRI can help to differentiate a hydatid cyst from malignant tumours, it can sometimes be confused with infected cysts or breast abscesses.⁸ Serological tests, such as ELISA, indirect haemagglutination and immunoblot techniques can be used for preoperative confirmation of the hydatid origin of a cyst diagnosed by imaging techniques. Recently, the quantitative assessment of serum-specific IgE has been performed for the diagnosis of hydatid cyst.⁹

FNAC is regarded as the initial investigation for breast lumps as it is simple, easy, quick and inexpensive. FNAC can enable preoperative diagnosis of hydatid cyst but in the present case it was not suggestive of hydatid cyst as it missed to aspirate hooklets, scolices or parts of the laminated membrane. Cytological

diagnosis may not always be possible. The diagnostic hooklets, scolices or parts of lamellated membrane may not always be demonstrable in FNAC smears and negative cytology has been reported earlier in the literature.⁵ Histopathological confirmation is therefore necessary for early and appropriate treatment.

The treatment of hydatid cyst disease is its complete excision without any spillage of cyst content, irrespective of its location. Recurrence of hydatid cyst has been reported with rates ranging from 2% to 25% and is attributed to either incomplete cyst removal or previously unidentified cysts.¹⁰

Competing interests None.

Patient consent Obtained.

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Learning points

- Hydatid cyst in the breast is rare.
- Preoperative diagnosis of hydatid cyst in the breast is difficult and often missed as the breast is a rare site of infection and clinical and imaging findings are wide and non-specific.
- Hydatid cyst of the breast should always be considered in the differential diagnosis of a breast lump.
- This case report further affirms the importance of histopathological confirmation of hydatid cyst of the breast for accurate early diagnosis and appropriate treatment.

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