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RESEARCH ARTICLE/ARAŞTIRMA YAZISI

IDIOPATHIC GRANULOMATOUS MASTITIS

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ABSTRACT

Introduction: Idiopathic granulomatous mastitis is a benign inflammatory breast disease of unknown etiology. It presents with granulomatous changes around the lobules and ducts. This study discusses the clinical presentation, radiological examination results, and histopathological results of 30 cases diagnosed with granulomatous mastitis.

Materials and Methods: The study included 30 patients that were diagnosed with granulomatous mastitis after a histopathological examination in Istanbul University Cerrahpaşa Medical School between 2000 and 2008.

Results: Of the 30 cases with granulomatous mastitis, 17 were diagnosed as idiopathic granulomatous mastitis in their histological examination. One of these cases was referred with the initial diagnosis of inflammatory breast carcinoma. Periodic acid shiff (PAS) and Erlich Ziehl Nelson (EZN) staining results were negative for all cases.

Discussion: Idiopathic granulomatous mastitis is a disease seen mostly in young females in the reproductive age, which may be misdiagnosed as breast carcinoma in clinical and radiological examinations.

Key words: idiopathic granulomatous mastitis, breast, granulomatus inflammation

İDYOPATİK GRANULOMATÖZ MASTİT

ÖZET

Giriş: İdyopatik granulomatöz mastit, etiolojisi bilinmeyen, benign, inflamatuar bir meme hastalığıdır. Lobül ve duktus çevrelerinde granulomatöz değişiklikler izlenir. Çalışmada histopatolojik incelemede granulomatöz mastit saptanan 30 olgu klinik presentasyon, radyolojik inceleme sonuçları, histopatolojik sonuçlar açısından tartışılacaktır.

Yöntem ve Gereçler: İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi'nde 2000-2008 yıllarında histopatolojik incelemede granulomatöz mastit saptanan 30 olgu çalışmaya alınmıştır

Bulgular: Granulomatöz mastit saptanan 30 olgudan 17'si histolojik inceleme sonucu "idyopatik granulomatöz mastit" tanısı almıştır. Bunlardan birisi inflamatuar meme karsinomu ön tanısı ile gönderilmiştir. Periodic ascit shift (PAS) and Erlich Ziehl Nelson (EZN) boyası sonuçları tüm olgularda negatifdir.

Tartışma: İdyopatik granulomatöz mastit genellikle reprodüktif çağdaki genç kadınlarda izlenen, klinik ve radyolojik incelemeler sonucu yanlışlıkla meme karsinomu tanısı alabilen bir hastalıkdır.

Anahtar sözcükler: idyopatik granulomatöz mastit, meme, granulomatöz inflamasyon

Introduction

"Idiopathic granulomatous mastitis" (IGM) or "idiopathic granulomatous lobular mastitis" is a rare breast disease of unknown etiology which tends to occur in young females and was first described by Kessler and Wolloch in 1972 (1). It is characterized by a tender mass in the breast, mimicking the clinical and radiological features of carcinoma. The diagnosis may be made by identifying granulomatous inflammation without caseification necrosis in the lobules via microscopic examination and by excluding all other reasons which may cause granulomatous inflammation of the breast (2,3).

The aims of this study were to examine the pathology reports of 30 cases that were histopathologically diagnosed as granulomatous mastitis, to discuss the general approach to granulomatous inflammation in the breast, and to focus on the features of IGM, which may be misdiagnosed as carcinoma.

Methods and Materials

Pathology reports of 30 cases diagnosed with granulomatous inflammation in the breasts between 2000 and 2008 at the Department of Pathology, Cerrahpasa Medical School Istanbul University, were retrospectively examined. The cases were assessed with re-

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spect to age, location of the lesion, initial clinical diagnosis, macroscopic and microscopic findings, pathological diagnosis, and interpretation. All cases had been assessed by pathologists with extensive breast pathology experience, and all were studied with periodic acid shiff (PAS) and Erlich Ziehl Nelson (EZN) staining.

Findings

Excisional biopsy was performed in 18 cases, tru-cut biopsy in 3 cases, incisional biopsy in 2 cases, lumpectomy in 1 case, and quadrantectomy in 1 case. No information was available in the reports of 2 cases. The histopathological assessment of 3 cases was performed with paraffin blocks and/or slides.

Tuberculosis was considered in the microscopic examination of 11 cases out of 30, and pathology reports recommended further examination for granulomatous diseases, particularly tuberculosis. PAS and EZN staining was used in all cases and mycotic agent or bacilli were not detected.

Microscopic findings of 17 cases suggested IGM and the reports of 14 of these cases mentioned the suppurative feature of the granulomatous inflammation. However, no cases were diagnosed as IGM, suppurative granulomatous inflammation discarded tuberculosis, and it was mentioned that the patient could be diagnosed with IGM after excluding all diseases that could lead to granulomatous inflammation in the breast. PAS and EZN staining was used in all cases, and mycotic agents or bacilli were not detected.

One of the cases was diagnosed as granulomatous mastitis, and another one was microscopically defined as having a tendency for granuloma formation; however, further interpretations were not made in either of the cases. In both patients, PAS and EZN staining results were negative.

The mean age of 17 cases for whom IGM was considered was 37.6. The diameter of the lesions in these patients varied between 1.2- 4.8 cm.

Fistulization to the skin was present in 3 cases whose initial diagnosis suggested tuberculosis and in 1 case that was diagnosed with IGM.

The lesions in all cases were unilateral; half were located in the right breast and the other half in the left breast. The information about the localization of the lesion within the breast in 18 cases revealed that the lesion could be in different quadrants. In 2 cases, it was located in the retroareolar area.

When the cases were examined with respect to their initial clinical diagnosis, none were present in 16 cases and the presence of a breast mass was mentioned in 3. Three cases were referred with the suggestion of tuberculosis and 4 with carcinoma (3 with inflammatory carcinoma). While the pathological examination revealed that one of the 3 cases with the initial diagnosis of inflammatory breast carcinoma was tuberculosis and another one was IGM, the other case was defined in the report only with granuloma structure. Of the 17 cases that were diagnosed as IGM in the histopathological examination, only one had IGM as an initial clinical diagnosis, and others reported inflammatory carcinoma, tuberculosis, or an abscess.

Information about the radiological examination was present only in one case and its findings were in line with carcinoma. At the end of the pathological examination, this case was diagnosed as IGM.

Intraoperative pathology consultation was requested for 3 cases that were considered as tuberculosis and 6 that were considered as IGM, and all results were benign.

The microscopic examination of IGM cases revealed perilobular granulomatous inflammation including polymorph nuclear leukocytes, epithelioid histiocytes, multinuclear giant cells of the Langhans type, lymphocytes, and plasma cells. In the microscopic examination of 4 IGM cases, epithelial proliferation was detected in the peripheral breast ducts.

Discussion

Many pathological processes may be responsible for the granulomatous inflammation of the breasts. These are examined under the overarching title of granulomatous mastitis (4-6) (Table 1). In addition to tuberculosis, leprous, and bacterial infections such as brucella, fungal infections, and parasitic infections, and foreign substance reactions may also lead to granulomatous mastitis (7,8). Another cause of granulomatous mastitis, IGM is a rare chronic disease of unknown etiology which is accompanied by perilobular granulomatous inflammation.

It is thought to be a cellular reaction to breast secretion flowing to perilobular connective tissue secondary to epithelial damage as a result of infection, trauma or a chemical event; however, no specific antigen has been shown (9). Even though some previous studies have claimed that IGM develops within 2 years after childbirth and is associated with nursing, oral contraceptive use, and hyperprolactinemia, these are not valid for all cases (4,10). To illustrate, Kamal et al.(11) reported oral contraceptive use among only 8.3% of their cases, pregnancy in 17%, and nursing in a similar 17% at the time of diagnosis. In our series, none of the 17 cases that were considered as IGM had a history of pregnancy or nursing.

IGM may be seen in women aged between 17 and 82, with a mean occurrence age of 30-34 (2,7,8). Hmissa et al.(12) studied 10 IGM cases and identified the mean age as 36.4. It was 37.6 in our patients, with only one above the age of 50.

Bilateral involvement is seen in one fourth of IGM cases and the lesion may be located in any quadrant of the breast (3,7,11). In our

Table 1. Etiology in granulomatous lesion of breast

1. Infection
   - Mycobacterium tuberculosis
   - Blastomikosis
   - Kriptokokosis
   - Histoplazmosis
   - Actinomikosis
   - Philarial infections
   - Corinobacterium
2. Autoimmune disease
   - Wegener granulomatosis
   - Giant cell arteritis
   - Foreign body reaction
3. Ductal ectasia
   - Plasma cell mastitis
   - Subareolar granuloma
   - Periductal mastitis
4. Diabetes mellitus
5. Sarcoidosis
6. Fat necrosis
7. Idiopathic

series, all cases had unilateral involvement, and no difference was detected between the right and left breasts or breast quadrants.

For the IGM diagnosis to be made, it is imperative that all other granulomatous mastitis reasons, primarily tuberculosis, be excluded after the detection of granulomatous inflammation in the histopathological examination. The presence of acid resistant bacteria and fungi should be excluded by using radiological and clinical tests; culture and histochemical staining methods. Tuberculosis bacilli DNA in the tissue should be sought by using the polimerase chain reaction (PCR) method. Another granulomatous disease with no known etiology, sarcoidosis should also be included in the differential diagnosis. It can be excluded with radiological tests, Kweim test, serum ACE, and lysozyme levels (8). The absence of caseification necrosis in the 17 cases interpreted as IGM in our series and the presence of suppurative granulomatous inflammation in 14 of them discards the diagnosis of tuberculosis. At the same time, tuberculosis and fungal infections were discarded in all patients by using EZN and PAS staining, which revealed no acid resistant bacilli or mycotic agent. However, histopathological findings alone are not enough to exclude other reasons for granulomatous inflammation. Particularly in endemic regions such as Turkey, a breast mass in a female patient could always lead to the possibility of tuberculosis. Therefore, even though the morphological findings in the pathology reports of our cases may have been consistent with IGM, the need to exclude all our granulomatous mastitis causes for a definitive diagnosis has been emphasized.

The most distinctive feature of IGM is the clinical and radiological suggestion of breast carcinoma in half of the patients. When the patient presents to the doctor with a breast mass whose diameter ranges between 1 and 8 cm (mean diameter 3 cm), inflammation on the breast skin and ulceration, the clinical and radiological tests may lead to the misdiagnosis of carcinoma (3,7,8). Mastectomy may unnecessarily be performed on these patients due to false positive results of fine needle aspiration (6,13). In the clinical examination of our series, suggestion of carcinoma occurred in 4 cases, three of which had been initially diagnosed as inflammatory carcinoma. Asking for an intraoperative pathology consultation prior to performing a mastectomy or breast prevention surgery saves the patient from an unnecessary operation. Intraoperative pathology consultation was requested in 6 cases in our series, all of which yielded a benign result.

Currently, there is no consensus on a standard treatment for IGM. Large excision is mostly preferred; however, with a risk of recurrence. Steroid treatment is used in recurring cases although information about its benefits is still limited (6,11,14,15). It is important that tuberculosis is discarded with the PCR method prior to steroid treatment, particularly in underdeveloped countries (11).

It was noteworthy in our study that the material from most patients was sent without reporting any clinical information or initial diagnosis. However, it is important in IGM diagnosis to know the patient's clinical and radiological findings (Oral contraceptive use, pregnancy and nursing history, breast cancer history in family, complaints at the time of presentation, exact size of the lesion, results of imaging methods). It is also important for training purposes to give feed back to the pathologist about the results of tests conducted to exclude granulomatous diseases other than IGM. Studies conducted with larger series where clinical, radiological, and pathological results are assessed together would help clarify fuzzy points of the disease.

References

1. Kessler E, Wolloch Y. Granulomatous mastitis: a lesion clinically simulating carcinoma Am J Clin Pathol 1972; 58: 624-646. (PMID: 4674439)
2. Lee JH, Oh KK, Kim EK, Kwack KS, Jung WH, Lee HK. Radiologic and clinical features of idiopathic granulomatous lobular mastitis mimicking advanced breast cancer. Yonsei Med J. 2006; 47:78-84.(PMID: 16502488)
3. O Malley FP, Pinder SE (eds). Breast Pathology. Philadelphia: Churchill Livingstone, 2006.
4. Bakaris S, Yuksel M, Ciragil P, Guven MA, Ezberci F, Bulbuloglu E. Granulomatous mastitis including breast tuberculosis and idiopathic lobular granulomatous mastitis. Can J Surg 2006;49:427-430. (PMID: 17234073)
5. Imoto S, Kitaya T, Kodama T, Hasebe T, Mukai K. Idiopathic granulomatous mastitis: case report and review of the literature. Jpn J Clin Oncol 1997;27:274-277.(PMID: 9379518)
6. Verfaillie G, Breucq C, Sacre R, Bourgain C, Lamote J. Granulomatous lobular mastitis: a rare chronic inflammatory disease of the breast which can mimic breast carcinoma. Acta Chir Belg 2006;106:222-224. (PMID: 16761483)
7. Rosen P.P, Hoda S.N. Breast Pathology. Diagnosis of Needle Core Biopsy. Philadelphia: Lippincott Williams & Wilkins, 2006.
8. Tavassoli FA. Pathology of the Breast.NewYork: McGraw-Hill, 1999.
9. Bani-Hani KE, Yaghan RJ, Matalka II, Shatnawi NJ. Idiopathic granulomatous mastitis: time to avoid unnecessary mastectomies. Breast J. 2004;10:318-322. (PMID: 15239790)
10. Fletcher A, Magrath I.M, Riddell R.H, Talbot I.C. Granulomatous mastitis: a report of seven cases. J Clin Pathol 1982; 35: 941-945. (PMID: 6889612)
11. Rowe P.H. Granulomatous mastitis associated with a pituitary prolactinoma. Br J Clin Pract 1984;38:32-34. (PMID: 6538433)
12. Hmissa S, Sahraoui W, Missaoui N, Stita W, Mokni M, Yacoubi M.T., Khairi H, Korbi S. Lobular idiopathic granulomatous mastitis. About 10 cases. Tunis Med 2006; 84:353-357. (PMID: 17042208)
13. Kfoury H, Bhlal L. Granulomatous lobular mastitis : A Clinicopathological study of 12 cases. Annal of Saudi Medicine 1997;17: 43-46. (PMID: 17377464)
14. Taghizadeh R, Shelley OP, Chew BK, Weiler-Mithoff EM. Idiopathic granulomatous mastitis: surgery, treatment, and reconstruction. Breast J. 2007;13:509-513. (PMID: 17760675)
15. Rosen P.P. Rosen's Breast Pathology. Philadelphia: Lippincott Raven, 1997.

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