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Racial Distribution and Management of Idiopathic Granulomatous Mastitis: A Single-Center Descriptive Cross-Sectional Study

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ABSTRACT

Background: Idiopathic granulomatous mastitis (IGM) is a rare inflammatory breast disease with variable clinical manifestations. The purpose of this study was to compare racial patterns and management of IGM at a tertiary academic center in New York.

Methods: A cross-sectional study was performed on all patients with a diagnosis of IGM from 2018 to 2024 at Stony Brook University Hospital.

Results: Twenty cases of IGM were identified by chart review. Hispanic women were significantly overrepresented in women with IGM ($P < 0.0001$). Hispanic women with IGM were significantly younger (35.1 ± 6.9 years) than white women (53.4 ± 12.2 years) at diagnosis ($P = 0.007$) and more likely to present with clinical findings rather than radiologic findings ($P = 0.045$). Most (71.4%) patients with no recurrence had been treated with prednisone ($n = 5$).

Conclusion: This study suggests that a racial predilection to IGM exists. Further studies are needed to develop the most effective treatment strategy for IGM.

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INTRODUCTION

Idiopathic granulomatous mastitis (IGM) is a benign chronic inflammatory condition of the breast of unknown etiology and without established treatment strategy.¹⁻⁶ IGM has been reported across races without a well-established predisposition to one specific ethnic group, but some studies report an association with those of Hispanic descent.^{1,2,5,6} Additionally, there is no consensus on optimal treatment for IGM.¹⁻⁶ Treatment options range from observation, non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics, and steroids to more invasive treatments, including surgical intervention.

METHODS

This cross-sectional study which was approved by an institutional review board was performed on all patients with a diagnosis of IGM from 2018 to 2024

at Stony Brook University Hospital. Patients were identified based on either pathology-confirmed diagnosis or as a clinical diagnosis of exclusion. Patients were excluded if they had granulomatous mastitis secondary to systemic diseases (e.g. sarcoidosis), infection (e.g. tuberculosis), or foreign bodies. Clinical data was collected by chart review of these patients including age at diagnosis, sex, race, imaging (ultrasound and mammogram BIRADS score), and presentation. The management of IGM was categorized as observation, NSAIDs, antibiotics, steroids, incision and drainage, or excisional biopsy, as described by Bhattarai *et al.*⁷ Outcomes analyzed included non-recurrence, recurrence, indolence, or lost to follow up.

RESULTS

Twenty cases of IGM were identified by chart review. Of the patients diagnosed with IGM, 20% were diagnosed based on clinical features ($n = 4$) and 80% of the diagnoses ($n = 16$) were confirmed via pathology. Of the patients studied, 70% ($n = 14$) were

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Hispanic, 25% (n=5) were white, and 5% (n=1) were Asian. These results are summarized in Table 1.

Table 1. Race, presentation, imaging, management and outcomes of IGM patients

Characteristics	N	%
Race (Hispanic/black/white/Asian)		
Asian-Indian	1	5
Hispanic	14	70
White	5	25
Presentation		
Abnormal imaging	3	15
Abscess	7	35
Abscesses	4	20
Painful mass	6	30
Ultrasound BIRADS score		
1	1	6
2	3	19
3	5	31
4	7	44
Mammogram BIRADS		
0	1	7
1	1	7
2	2	14
3	5	36
4	5	36
Management (observation, NSAIDs, antibiotics, steroids, incision and drainage, surgery)		
Antibiotics	5	25
NSAIDs	1	5
Observation	5	25
Prednisone	8	40
Prednisone, methotrexate	1	5
Outcome (no recurrence, recurrent, indolent, lost to follow up)		
Indolent	7	35
Lost to follow up	3	15
No recurrence	7	35
Recurrence	3	15

IGM and Race

Using cross tabulations based on expected race populations in Long Island, it was determined that Hispanic women were significantly overrepresented in women with IGM ($P < 0.0001$). There was no racial disparity in outcome (no recurrence, indolence, recurrence, or lost to follow up) ($P = 0.19$), management style ($P = 0.13$), or BIRADS score ($P = 0.69$) via Pearson Chi Square analysis. However, there was a significant difference ($P = 0.045$) in presentation by race with 100% ($n = 14$) of Hispanic women presenting with clinical symptoms, compared to 60% ($n = 3$) of white women with IGM presenting due to abnormal imaging and 40% ($n = 2$) presenting with an abscess or painful mass.

An Independent-Samples Kruskal-Wallis Test comparing Asian, Hispanic, and white women revealed that Hispanic women with IGM were significantly younger (35.1 ± 6.9 years) than white women (53.4 ± 12.2 years) ($P = 0.007$). Also, there was no significant difference in follow-up time between Hispanic women and their white counterparts (5.4 ± 6.9 months vs 20.3 ± 15.0 months, $P = 0.15$).

Management of IGM and Outcome

A Pearson Chi Square analysis showed that management style was associated with significant differences in outcome ($P = 0.026$) (Table 2), with 71.4% of patients with no recurrence having had treatment with prednisone ($n = 5$), 14.3% ($n = 1$) having had treatment with antibiotics, and 14.3% ($n = 1$) having had no intervention. In women with indolent disease ($n = 7$), 57.1% ($n = 4$) had been treated with antibiotics and 42.9% ($n = 3$) had been observed.

Table 2. Management style associated with significant differences in outcome

Outcome (no recurrence, recurrent, indolent, lost to follow-up)								
	indolent		lost to follow up		no recurrence		recurrence	
Management	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Antibiotics	4	57.1%	0	0.0%	1	14.3%	0	0.0%
NSAIDs	0	0.0%	1	33.3%	0	0.0%	0	0.0%
Observation	3	42.9%	1	33.3%	1	14.3%	0	0.0%
Prednisone	0	0.0%	1	33.3%	5	71.4%	2	66.7%
Prednisone, Methotrexate	0	0.0%	0	0.0%	0	0.0%	1	33.3%

P-value = 0.026*



DISCUSSION

This study showed that most women with IGM at Stony Brook University Hospital were Hispanic. Another study further stratified by country of origin and found that most Hispanic women were specifically from Mexico, which was not seen in our work [7]. Of Hispanic women with IGM at Stony Brook University Hospital (n=14), 28.6% (n=4) were Ecuadorian, 21.4% (n=3) were unspecified, 14.3% (n=2) were Salvadorean, 14.3% (n=2) were Columbian, 7.1% (n=1) were Guatemalan, and 7.1% (n=1) were Honduran. This difference in country of origin may reflect demographic differences in regions of New York.

Hispanic women with IGM were significantly younger than their white counterparts and on average, followed up sooner, which may be ascribed to the observation that Hispanic women were more likely to present with a symptomatic lesion, thereby prompting closer follow-up by the patient or the surgeon to monitor for resolution of symptoms.

We found that most patients without recurrence had been treated with steroids, which contrasts with the findings of another study that found that antibiotic treatment with doxycycline as a first-line therapy resulted in complete resolution of IGM in 50% of patients that were studied.⁸

Limitations

There were some limitations to the study. This work was a descriptive cross-sectional study with a small sample size, so only associations and trends can be suggested. Additionally, the diagnosis of IGM was acquired clinically or on pathology, but a standardized diagnosis on pathology would decrease any confounding variables.

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CONCLUSION

This descriptive cross-sectional study suggests that a racial predilection to IGM exists, specifically affecting mostly Hispanic women who tend to be younger at age of diagnosis than other racial groups. Additionally, we observed that outcomes differed by initial management of the disease; specifically, that most patients without recurrence of their disease had been treated with prednisone. Further studies are needed to discern the specific effect of therapeutic modality on resolution of IGM.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

ETHICAL CONSIDERATIONS

This work was completed through Stony Brook University Hospital IRB2024-00126. This study complies with the Declaration of Helsinki and the ethics committee has approved this research.

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DATA AVAILABILITY

The corresponding author can be contacted directly for access to the data.



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