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ORIGINAL ARTICLE

Assessment of histomorphological features of granulomatous prostatitis

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ABSTRACT:
Background: Granulomatous prostatitis is a rare form of chronic prostatitis characterized by the presence of granulomas, which are small areas of inflammation composed of a collection of immune cells. The present study was conducted to assess histomorphological features of granulomatous prostatitis. **Materials & Methods:**48 prostatic specimens of granulomatous prostatitis received in the department of the pathology were recruited. Presenting complaints, digital rectal examination (DRE) findings and laboratory investigation like PSA levels and TRUS were recorded. **Results:** Type was non-specific granulomatous prostatitisin 26, tubercular granulomatous prostatitis in 12, allergic granulomatous prostatitis in 3, postsurgical granulomatous prostatitis in 4 and xanthogranulomatous prostatitis in 3 patients. The difference was significant (P< 0.05). Type of granulomas was diffuse in 21, focal in 10, well defined in 8, ill formed in 9 cases. Necrosis was caseous in 28, fibrinoid in 20, inflammatory cells were neutrophils in 4, lymphocytesin 19, epithelioid cellsin 7, histiocytes in 15, foamy macrophages in 1 and giant cells in 2 cases. The difference was significant (P< 0.05). **Conclusion:** When it comes to making a diagnosis, histopathology is still the gold standard. However, a pathologist's knowledge is necessary to determine the etiologic etiology of the diverse range of granulomas in granulomatous prostatitis.
Keywords: Granulomatous prostatitis, transrectal ultrasonography, dysuria

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INTRODUCTION

Granulomatous prostatitis is a rare form of chronic prostatitis characterized by the presence of granulomas, which are small areas of inflammation composed of a collection of immune cells.[1] This condition can be caused by various factors, including infections, autoimmune reactions, and exposure to certain substances.[2] In urological treatment, granulomatous prostatitis is an uncommon form of inflammatory prostate disease that seldom manifests itself. Tanner and McDonald initially reported granulomatous prostatitis in 1943, noting that it accounted for 3.3% of all inflammatory lesions in the prostate.[3,4]

Urinary symptomsinclude frequency, urgency, dysuria (painful urination), and difficulty urinating, pain in the perineum, lower abdomen, or lower back, fever, malaise, and general discomfort, especially if an infection is present.[5]Clinically, it appears as a hard fixed nodule on digital rectal examination (DRE), high serum PSA levels, and hypoechoic shadows on transrectal ultrasonography (TRUS), all of which are indicative of prostatic cancer.[6] Microscopic examination reveals granulomas, which are collections of macrophages, sometimes with multinucleated giant cells, surrounded by lymphocytes and fibroblasts.Special stains may be required to identify specific infectious agents.As a result, the gold standard for diagnosing granulomatous prostatitis is still histology.[7,8,9]The present study was conducted to assess histomorphological features of granulomatous prostatitis.

MATERIALS & METHODS

The present study was conducted on 48 prostatic specimens of granulomatous prostatitisreceived in the department of the pathology. All were informed regarding the study and their written consent was obtained.Inclusion criteria included all types of prostatic specimens including TURP and needle biopsies. Exclusion criteria was inadequate biopsies and poorly preserved prostatic specimens.

Data such as name, age, gender etc. was recorded. Presenting complaints, digital rectal examination (DRE) findings and laboratory investigation like PSA levels and TRUS were recorded.In order to confirm the infectious nature of granulomatous prostatitis, sections from each case of histopathologically diagnosed granulomatous prostatitis on Hematoxylin and Eosin (H&E) were stained with specific stains such as Gomori's stain, Periodic acid Schiff (PAS), and Ziehl Neilsen stain (ZN stain). The H&E and special stains were carried out in accordance with John D. Bancroft's instructions.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Type of granulomatous

Type	Number	P value
Non-specific granulomatous prostatitis	26	0.05
Tubercular granulomatous prostatitis	12	
Allergic granulomatous prostatitis	3	
Postsurgical granulomatous prostatitis	4	
Xanthogranulomatous prostatitis	3	

Table I shows that type was non-specific granulomatous prostatitis in 26, tubercular granulomatous prostatitis in 12, allergic granulomatous prostatitis in 3, postsurgical granulomatous prostatitis in 4 and xanthogranulomatous prostatitis in 3 patients. The difference was significant (P< 0.05).

Graph I Type of granulomatous

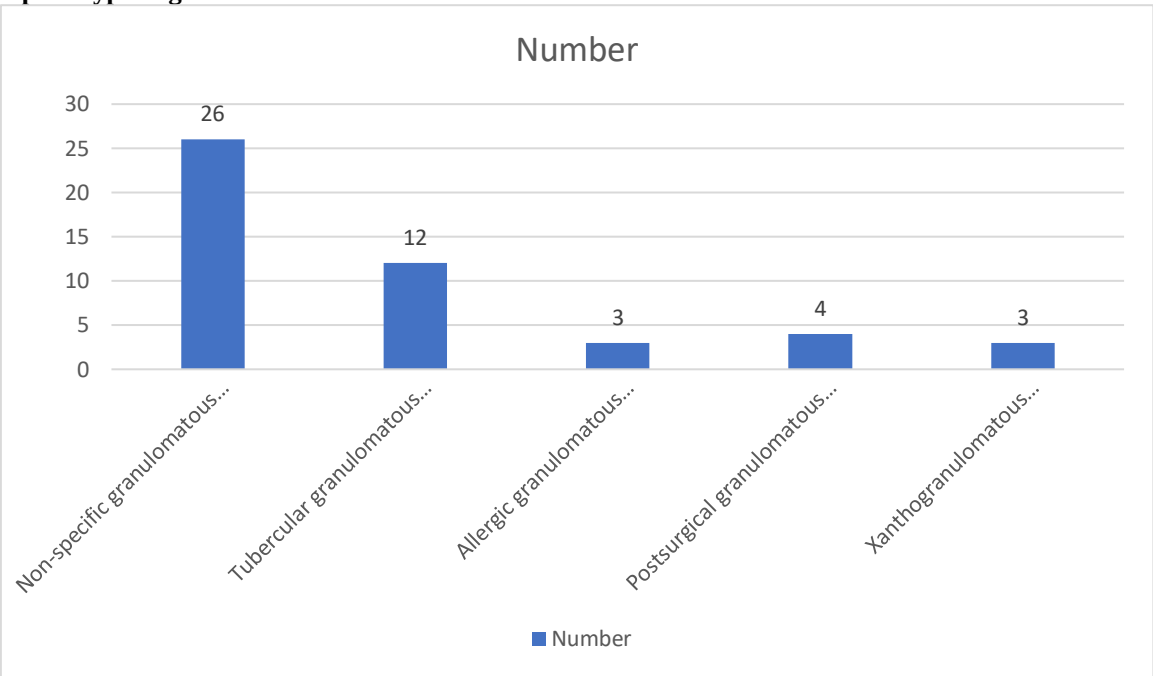
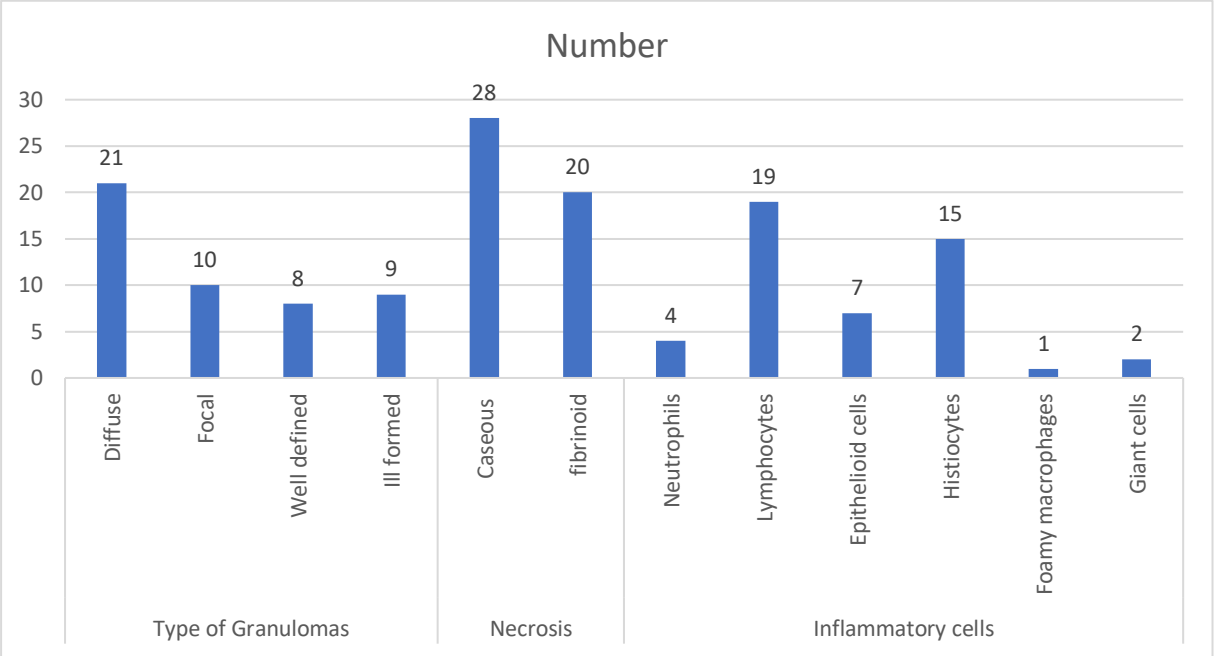


Table II Assessment of histomorphological features

Parameters	Variables	Number	P value
Type of Granulomas	Diffuse	21	0.05
	Focal	10	
	Well defined	8	
	Ill formed	9	
Necrosis	Caseous	28	0.92
	fibrinoid	20	
Inflammatory cells	Neutrophils	4	0.01
	Lymphocytes	19	
	Epithelioid cells	7	
	Histiocytes	15	
	Foamy macrophages	1	
	Giant cells	2	

Table II, graph II shows that type of granulomas was diffuse in 21, focal in 10, well defined in 8, illformed in 9 cases. Necrosis was caseous in 28, fibrinoid in 20, inflammatory cells were neutrophils in 4, lymphocytes in 19, epithelioid cells in 7, histiocytes in 15, foamy macrophages in 1 and giant cells in 2 cases. The difference was significant (P< 0.05).

Graph II Assessment of histomorphological features



DISCUSSION

Granulomatous prostatitis is a group of morphologically distinct forms of chronic prostatitis that is often detected incidentally onhistopathology.[10,11] Although the incidence is low, it is currently diagnosed more frequently because of increased transurethral resectionof the prostate (TURP), needle biopsy procedures, and extensive use of intravesical Bacillus Calmettee Guerin (BCG) instillation in nonmuscle invasive bladder cancer (NMIBC).[12,13]The present study was conducted to assess histomorphological features of granulomatous prostatitis.

We found thattype was non-specific granulomatous prostatitisin 26, tubercular granulomatous prostatitis in 12, allergic granulomatous prostatitis in 3, postsurgical granulomatous prostatitis in 4 and xanthogranulomatous prostatitis in 3 patients. Kumbar et al[14]studied the histomorphological features and to know the prevalence of granulomatous prostatitis. Out of 17 cases of granulomatous prostatitis, we encountered 9 cases of non-specific granulomatous prostatitis, 5 cases of xanthogranulomatous prostatitis and 3 cases of specific tubercular prostatitis. The common age ranged from 51-75 years (mean 63 years) with mean PSA level of 15.8ng/ml. Six patients showed focal hypoechoic areas on TRUS and 11 cases revealed hard and fixed nodule on DRE.

We observed that type of granulomas was diffuse in 21, focal in 10, well defined in 8, ill formed in 9 cases. Necrosis was caseous in 28, fibrinoid in 20, inflammatory cells were neutrophils in 4, lymphocytesin 19, epithelioid cells in 7, histiocytes in 15, foamy macrophages in 1 and giant cells in 2 cases. Bryan et al[15] in their study in a clinicopathological study of granulomatous prostatitis, found two distinct histological patterns. Approximately one third of cases consisted of localized, often elongated or stellate lesions, resembling rheumatoid nodules. Where clinical details were available, most of these cases had a history of previous transurethral resection. The remaining cases showed more diffuse involvement of the prostate, with lesions centred on ducts and glands, and were not associated with previous prostatic surgery or systemic illness. Immunohistochemical studies of the associated inflammatory infiltrate showed an apparently random distribution of T- and B-lymphocytes in the former group, while in the latter group there was a concentration of T-cells in and around damaged ducts and glands, suggesting a possible immune-mediated destruction of these structures.

Shanngar et al[16] in their study a total of 1388 reports of prostatic biopsy and prostatic chips from TURP were reviewed. A total of 9 cases with granulomatous prostatitis were identified. There are 3 types of entities which are the non-specific (NSGnP), post-TURP and the specific type.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that when it comes to making a diagnosis, histopathology is still the gold standard. However, a pathologist's knowledge is necessary to determine the etiologic etiology of the diverse range of granulomas in granulomatous prostatitis.

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