Granulomatous Prostatitis: A Reminder to Clinicians

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SUMMARY

Granulomatous Prostatitis (GnP) is a heterogenous entity classified into specific infections, non-specific infections, post surgical i.e. post-transurethral resection of prostate (TURP) and rare secondary (systemic) causes. A total of 1388 reports of prostatic biopsy and prostatic chips from TURP were reviewed from 1995 and 2007. The results which showed granulomatous prostatitis were analyzed and retrospective data collected from the patient's records. 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 incidence of GnP in our center is lower than reported by Stillwell *et al* [2]. The majority of the patients were Malays.

KEY WORDS:
Granulomatous Prostatitis, Non-specific infection, Specific infection, Post-TURP

INTRODUCTION

Granulomatous Prostatitis (GnP) is a heterogenous entity encompassing lesions attributed to specific infections, non-specific infections, post surgical (i.e. post-transurethral resection) and rare secondary (systemic) causes[1,2] which is based on the classification system proposed by Epstein and Hutchins that is widely accepted and generally used[1]. Infective causes include BCG instillation for superficial transitional cell carcinoma of the bladder and less frequently Mycobacterium tuberculosis infection, various fungi and other organisms. Post-surgical GnP is usually the result of transurethral resection of the prostate. Rare secondary causes include Wegener's granulomatosis and an allergic reaction associated with asthma. NSGnP may be clinically and histologically mistaken for prostate adenocarcinoma[3], occasionally leading to surgical overtreatment. In the data reported by Stillwell[2] the incidence of GnP consisted of 69% NSGnP, 24.5% post-TURP GnP, 3.5% infective (IGnP), and 3% systemic GnP. The present study was undertaken to look at the incidence of GnP and its characteristics in our center.

MATERIALS AND METHODS

All data from prostatic biopsy between 1995 and 2007 at our center were reviewed. A total of 1388 reports of prostate biopsy and prostatic chips were reviewed. All histopathological results showing granulomatous prostatitis were analyzed and retrospective data collected from the patient's records. Those who were found to have granulomatous prostatitis were further subdivided into Epstein and Hutchin's classification i.e. specific, non-specific, post-TURP and allergic granulomatous prostatitis. The selected patients data were studied and analyzed according to their age, race, documented urine culture and underlying medical illnesses as well as any previous TURP surgery documented.

RESULTS

There were 9 cases with granulomatous prostatitis aged from 16 to 79 years (mean 59.5 years). This constitutes 0.65% from the total of 1388 cases of prostatic biopsy. Four (4) out of 9 cases were Malays (44%), three (3) were Chinese (30%) and two (2) more were Indians (22%). The diagnosis were obtained from TURP specimens in 66.7% (n=6) cases, from transrectal ultrasound (TRUS) biopsy in 22.2% (n=2) and 11.1% (n=1) from Trucut biopsy of the prostate. NSGnP was noted in 55.6% (n=5) whereas 22.2% (n=2) post-TURP GnP and another 22.2% (n=2) had a specific infection causing GnP. The two patients with spesific granulomatous prostatitis had coexisting pulmonary tuberculosis, while those with NSGnP had documented urinary tract infection. None of the patients were noted to have allergic type of GnP.

DISCUSSION

The pathogenesis of GnP remains unknown but extravasation of prostatic secretions due to inflammation (i.e. from infection, surgical diathermy or tissue necrosis), and blockage and rupture of prostatic ducts appear to be important factors in the development of granulomas. These processes can occur in normal, carcinomatous or most commonly in a nodular hyperplastic prostate gland[4]. The distribution is generally periglandular with some glandular destruction[5]. It is reported in most cases that the cause of GnP is unknown[5], but GnP can occur after various events, e.g. UTI (73%)[2], TURP/open prostatectomy[6], needle biopsy and instillation of BCG into the bladder[7]. From our study, we have found that the incidence of GnP in our center is lower than reported by Stillwell *et al*[2], (which calculated a 0.8% incidence of GnP in a series of needle biopsies and transurethral resection). Our series showed only an incidence of 0.65%. Majority of our patients with GnP were Malays followed by Chinese and Indians.

Our study also revealed that the non-specific granulomatous prostatitis (NSGnP) is the most common granulomatous lesions of the prostate, followed by the post-TURP type and specific GnP type. None of the patients in our series had an allergic GnP. NSGnP is usually reported as an incidental finding, with an incidence of 3.4% in an unselected series of patients[8]; it is detected in 0.44% of routine prostatectomy

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specimens[6] and in 0.29%[6] to 3.3%[12] of needle prostate biopsies. It has been hypothesized that this can result from a foreign body response to a colloidal substance, bacterial products or refluxed urine[3,10]. It can also be a result of an immunologic response to extraductal prostatic secretions[9,11] arising from ducts obstructed by hypertrophy or inflammation. The distinction of NSGnP from specific forms of GnP is important because of the former's benign and resolving clinical course[3].

Specific GnP generally occurs in 1.3% of patients after intravesical BCG treatment[13]. It was reported that Mycobacterial prostatitis is more common in patients with BCG immunotherapy for superficial bladder carcinoma. The incidence of prostatic involvement in systemic tuberculosis ranges from 3% to 12%. In over 90% of these cases, there is coexisting pulmonary tuberculosis. In patients with urogenital tuberculosis, the prostate is involved in 75-95% of the cases[14,15]. However, in only 7-13% of cases of urogenital tuberculosis is the prostate the sole organ involved. Most cases of tuberculous prostatitis appear to arise from haematogenous dissemination rather than contact with infected urine. In our study, the patients with tuberculous prostatitis were found to have coexisting pulmonary TB. The two patients in this group were diagnosed to have GnP at a young age. However, our series revealed that none of the patients had intravesical BCG treatment.

Prostatic granulomas are frequently a sequelae after a transurethral resection[1,16]. Our study showed that two patients (22.2%) had GnP post-transurethral resection/post-biopsy which is slightly lower than reported by Stillwell et al. It is noted that the interval between post-transurethral resection granuloma formation ranges from 9 days to 52 months. Although it is much more common to have a granulomatous reaction following transurethral resection, similar linear granulomas may occasionally develop following needle biopsy.

Eventhough carcinoma co-exist in 10-14% of patient with clinically diagnosed GnP[17,18], we did not find any record reporting this. This may be due to the pathologists awareness in usage of special staining technique for clarification. GnP can also cause a significant but transient increase in serum Prostate Specific Antigen (PSA) levels[19]. The correlation of granulomatous prostatitis with PSA levels could not be analyzed in our study as PSA level testing was not carried out in most of the cases.

CONCLUSION

The incidence of GnP in our center is lower than reported in literature but still is an entity to be considered when dealing with prostatic diseases. The majority of our patients were Malay. Non-specific granulomatous prostatitis (NSGnP) is the most common granulomatous lesions of the prostate, followed by the post-TURP type and specific granulomatous prostatitis type.

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