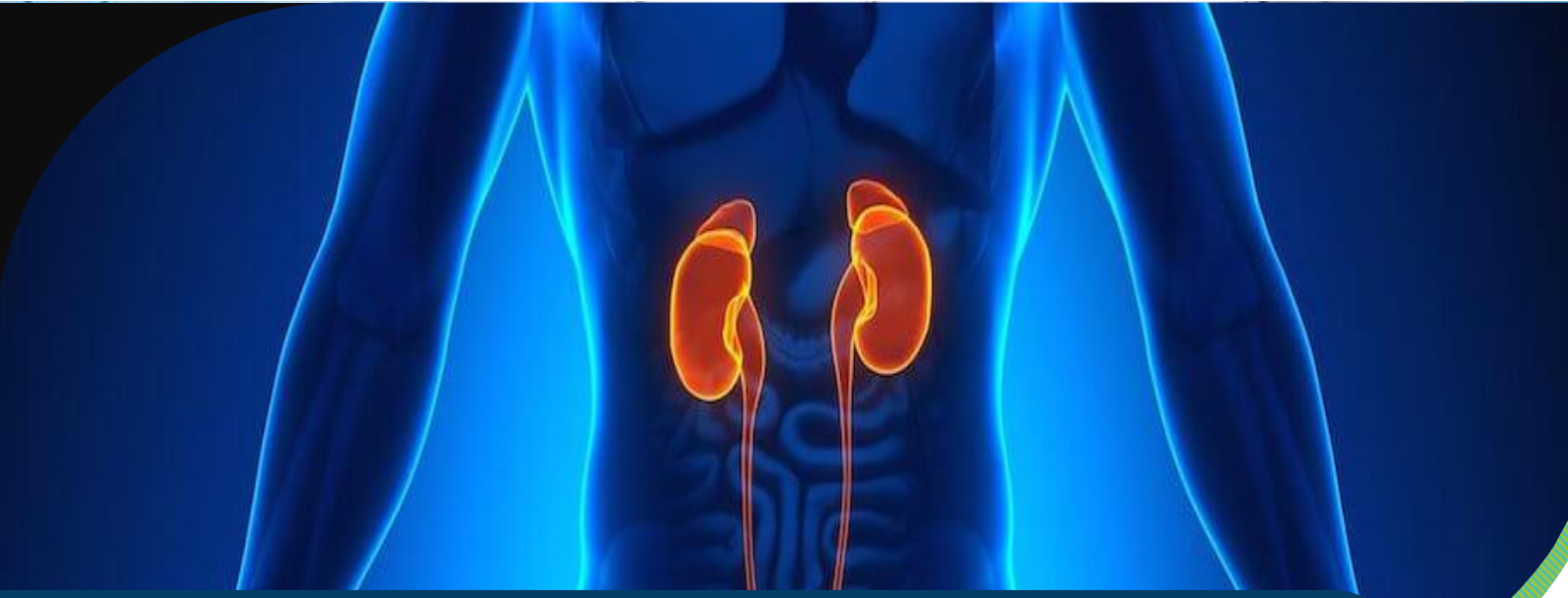

NU Rounds

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Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you "**NU Rounds**" which contains latest and interesting news in the field of Urology.

Inside This Issue:

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Ltd

SARS-CoV-2 in Semen of Men with COVID-19

According to a report reported online in JAMA Network Available, extreme acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is present in the semen of certain COVID-19 patients including recovered patients.

In Shangqiu Municipal Hospital, Diangeng Li, PhD, of the Chinese People's Liberation Army General Hospital in Beijing, and colleagues reported all male patients with laboratory-confirmed COVID-19 between January 26 and Feb. 16, 2020. Thirty-eight patients participating in the SARS-CoV-2 study were requested to have a semen sample.

Of the 38 patients, 23 had completed surgical treatment, and 15 were at the severe infection level. Researchers observed that 6 patients (15.8%) had good SARS-CoV-2 results, including 4 patients at the severe infection level and 2 patients recovered (26.7% and 8.7% respectively). Patients with negative and positive test outcomes didn't vary in age, background of urogenital disorder, days from onset, days from hospitalization, or days from surgical rehabilitation.

The authors wrote that, if it could be proven that SARS-CoV-2 can be sexually transmitted in future research, sexual transmission may be a vital part of transmission prevention, particularly given the fact that SARS-CoV-2 has been found in patient recovery semen. This research may add to the present discussion on COVID-19 prevention by presenting new details.

Source:

Li D, Jin M, Bao P, et al. Clinical Characteristics and Results of Semen Tests Among Men with Coronavirus Disease 2019. JAMA Netw Open. 2020;3(5): e208292. doi: 10.1001/jamanetworkopen.2020.8292

Outcomes after Stone Removal in Obstructive Acute Pyelonephritis Associated with Urinary Tract Calculi

INTRODUCTION

One of the main emergency diseases in the urological area is obstructive acute pyelonephritis (APN) connected with upper urinary tract calculus. This may lead to serious sepsis and can become life-threatening. Despite intensive care and urinary drainage, it is recorded that the mortality rate is about 2%. Therefore, numerous predictive studies of sepsis development have been identified and physicians have attempted to manage this disease successfully by risk stratification.

The EAU Recommendations on Interventional Care for Urolithiasis (2016) state that stone-caused blocking and inflammation are signs of successful stone removal, and stone removal is deemed appropriate for most patients. Treatment for patients presenting secondary to upper urinary tract calculus with obstructive APN may require not just reducing inflammation, but also extracting stone. Stone removal-al surgery has become successful and secure; however severe post-operative problems often occur. There are concerns regarding immediate postoperative pyelonephritis, particularly during treatment of obstructive APN, when active stone removal is done for patients. Additionally, there are still questions regarding stone recurrence and APN recurrence following successful stone removal during the follow-up phase. These issues have however been documented by few studies.

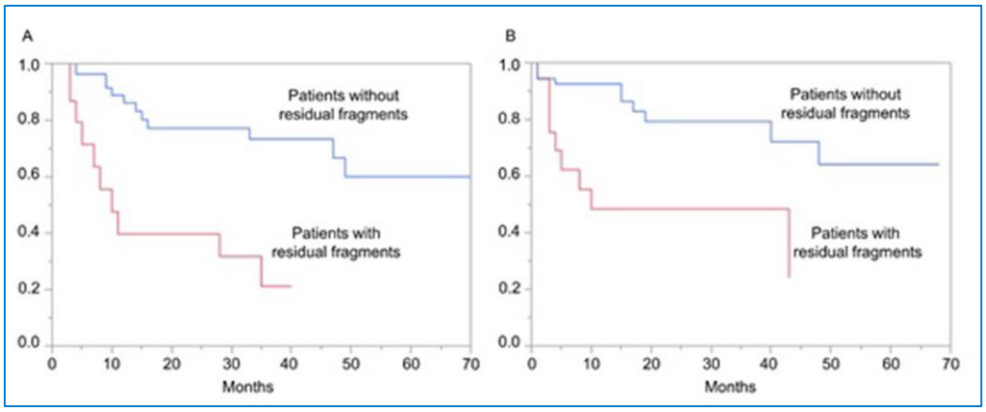
The current study aims to examine postoperative progress after active stone removal and to identify the predictors of three outcomes: immediate postoperative febrile urinary tract infection (UTI), stone recurrence, and APN recurrence during the follow-up period.

METHODS

This was a retrospective study of 107 patients who underwent stone removal following treatment for obstructive APN associated with urinary tract calculi. Logistic regression analysis was used to identify the factors that contributed to postoperative febrile UTI after stone removal. Cox proportional hazard analyses were used to identify the factors contributing to stone recurrence and APN recurrence during the follow-up period.

RESULTS

Postoperative febrile UTI was observed in 23 out of 107 patients (21.5%). Multivariate logistic regres¬sion analysis revealed that female sex (P = .02) and having multiple stones (P < .01) were independently significant predictors of postoperative febrile UTI. One-year recurrence-free survival rates of stone disease and APN were 76.1% and 82.5%, respectively. Multivariable cox proportional hazard analyses revealed that presence of residual fragments was the only significant risk factor for stone recurrence (P < .01) and marginally significant for APN recurrence (P = .05).



Comparison of (A) stone recurrence-free survival rate and (B) pyelonephritis recurrence-free survival rate between patients with and without residual fragments.

CONCLUSIONS

After successful stone removal, patients with obstructive APN often experience postoperative febrile UTI. The main factors are the involvement of female sex and several stones. Residual fragments after stone removal in patients with obstructive APN may also induce recurrence of APN as well as recurrence of stones. Therefore, removal of stone without having residual traces is of utmost importance for these patients.

REFERENCE

Yamashita S, Kohjimoto Y, Higuchi M, Ueda Y, Iguchi T, Hara I. Postoperative Progress after Stone Removal Following Treatment for Obstructive Acute Pyelonephritis Associated with Urinary Tract Calculi: A Retrospective Study. Urol J. 2020;17(2):118-123.

The role of matrix-metalloproteinase-2 in bone marrow micro-metastasis in patients treated with radical prostatectomy for prostate cancer

INTRODUCTION

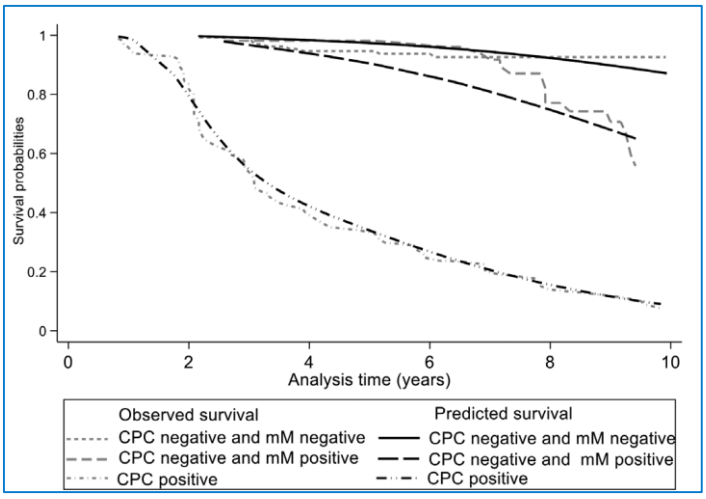
Ultimately, the existence of metastatic disease can assess prostate cancer-specific mortality in patients treated for prostate cancer with radical prostatectomy. The imbalance in the distribution of tumor cells is an early occurrence in the disease cycle. Few of these prostate circulating cells (CPCs) may survive, but those that do may foster micro-metastasis beyond the radical prostatectomy surgical area. Metalloproteinases are a category of endoproteinases that can destroy the extracellular matrix and play a significant role in the spread of cancer and in the release of growth factors. Matrix-metalloproteinase-2 (MMP-2) is a gelatinase which has been documented to increase its expression in prostate tissue samples among prostate cancer patients. The expression is correlated with high-level prostate cancer, low Gleason levels, and metabolic dysfunction as an independent prognostic factor. It is assumed to be important for the successful proliferation of tumor cells into the bloodstream, enabling extravasation of tumor cells into the bloodstream via the basement membrane. Passive entrance into circulation through cancer cells such as those that do not need MMP-2 after biopsy. Such circulating prostate cancer cells begin to produce MMP-2 and eventually, implanting in the premetastatic region, home in on the bone marrow. Here they communicate with stromal cells of the bone marrow, which play a significant role in deciding the actions of tumor cells. Much of the bone marrow micro-metastasis in patients with nonmetastatic prostate cancer may not express MMP-2; however, the micro-metastasis that re-express MMP-2 with progression of the disease. Two subtypes of minimal residual disease (MRD) with specific trends of relapse have been identified in non-metastatic prostate cancer. Patients that are positive for the involvement of CPCs, irrespective of whether bone marrow micro-metastasis was present, had a higher risk of early failure, while patients that are CPC-negative still have a higher risk of late failure. The aim of this study was to determine the expression of MMP-2 in bone marrow micro-metastasis, the association with the presence of CPCs, and outcomes in prostate cancer patients treated with radical prostatectomy as monotherapy.

METHODS

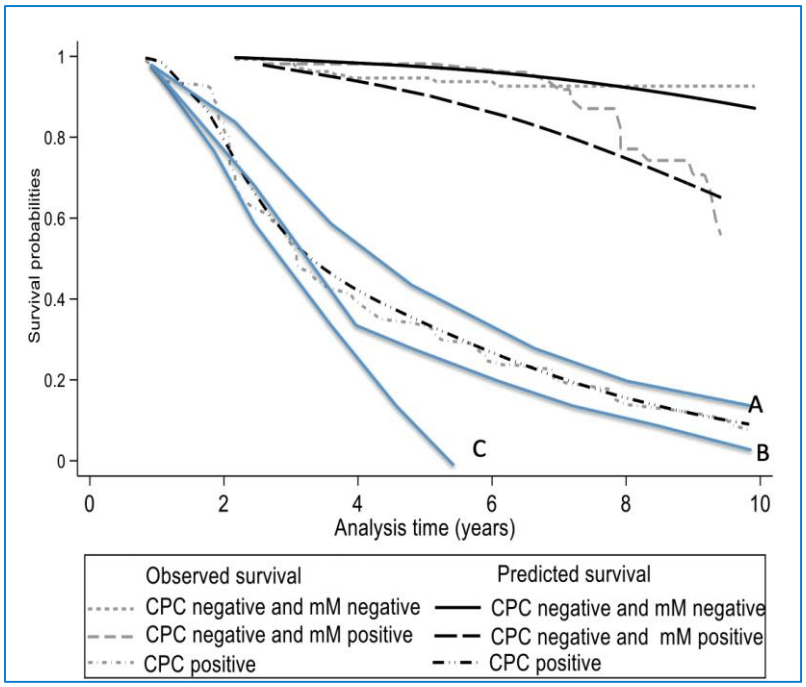
This was a prospective study of men undergoing radical prostatectomy. Bone mar¬row and blood samples were taken at one month after surgery. Micro-metastasis and CPCs were identified using immunocytochemistry with anti-prostate specific–antigen and MMP-2 expression determined with anti–MMP-2. Pathological stage, Gleason score, and time to biochemical failure were recorded; meanwhile, Kaplan–Meier biochemical failure–free survival and restricted mean biochemical failure–free survival times for 10 years were determined.

RESULTS

A total of 282 men participated, 54 (19%) of whom had micro-metastasis but not CPCs (group B) and 88 (31%) of whom had micro-metastasis and CPCs (group C). Men in group C had a higher frequency of MMP-2 expressing micro-metastasis at 63% versus 12% ($p<0.001$), and MMP-2 expression in bone marrow micro-metastasis was associated with a higher Gleason score ($p<0.05$) as well as a higher frequency of and shorter time to treatment failure. Also, a 10-year Kaplan–Meier biochemical failure–free survival rate of 0% versus 7.7% (MMP-2 positive versus negative) and a mean time to biochemical failure of 2.6 versus 4.0 years were recorded.



The Kaplan–Meier (observed) Biochemical Failure–Free survival curves and Flexible Parameter Model (Predicted) Biochemical Failure–Free Survival curves for Groups A, B, and C for up to 10 years of follow-up Group A CPC and micro-metastasis negative; Group B, CPC negative micro-metastasis positive; Group C CPC positive.



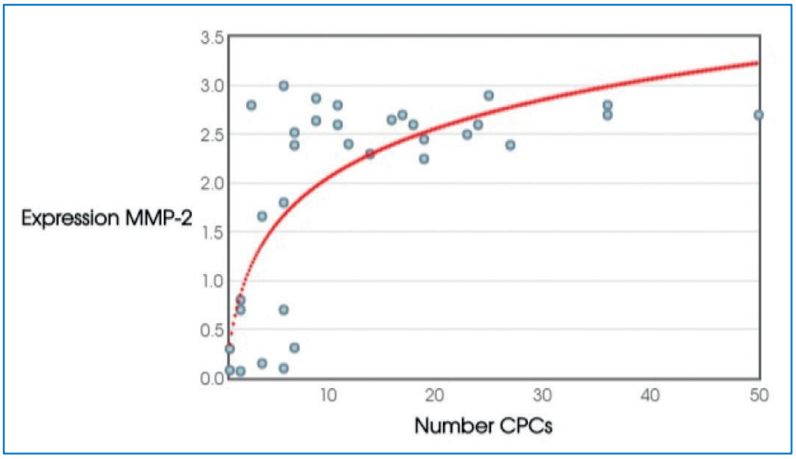
Kaplan-Meier survival curves at 10 years, showing sub-classification of patient's bone marrow positive for micro-metastasis and CPC positive according to bone marrow micro-metastasis MMP-2 expression

A: micro-metastasis positive, MMP-2 negative and CPC positive

B: micro-metastasis positive, MMP-2 >0%-<10% and CPC positive

C: micro-metastasis positive, MMP >10% and CPC positive

CPC: circulating prostate cell; mM: micro-metastasis; MMP-2: matrix metalloproteinase 2



Logistic regression curve of the number of circulating prostate cells/blood sample detected and the expression of membrane matrix metalloproteinse-2 in bone marrow micro-metastasis

CONCLUSION

The expression of MMP-2 in micro-metastasis of the bone marrow is correlated with a higher Gleason ranking, the prevalence of CPCs, and a higher incidence of failure and shorter period, which could be clinically useful in determining men at high risk of treatment failure.

REFERENCE

Murray NP, Reyes E, Salazar A, et al. The expression of matrix-metalloproteinase-2 in bone marrow micro-metastasis is associated with the presence of circulating prostate cells and a worse prognosis in men treated with radical prosta¬tectomy for prostate cancer. Turk J Urol 2020; 46(3): 186-95.