Vesical stones in Asir Region: comparison of Saudi with non-Saudi patients

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Abstract Objective: To compare the pattern of vesical stones in Saudi and non-Saudi patients and evaluate the need for routine thorough investigations for underlying urinary diseases.

Design: A retrospective study involving 96 consecutive patients with vesical stones.

Settings: Asir Central Hospital (A.C.H.) and Armed Forces Hospital, Southern Region (AFHSR)

Patients and methods: Patients were divided into two groups: Saudis comprising 56 patients and non-Saudis consisting of 40 patients. Both groups were compared to highlight age and sex distribution, clinical features and etiological differences.

Results: There were a total of 93 males and 3 females; all of whom were elderly Saudis with gynecological problems. Age distribution was significantly different (p<0.05) with a Saudi peak above 50 years and a non-Saudi peak at middle age (21-30 years). Three non-Saudi children were encountered whereas childhood vesical stones were non-existent in Saudis. Only 10% of the stones in both groups were idiopathic. In the remaining 90% several underlying diseases; the distribution of which was significantly different (p<0.05) in both groups; could be identified. Saudi stones were mainly associated with benign prostatic hyperplasia (BPH) whereas non-Saudi stones were either migratory or associated with bilharziasis. Presentation with acute retention of urine was significantly commoner in non-Saudi patients (33% v. 13%) in view of urethral impaction of the more frequent small migratory stones. Saudi patients underwent significantly more open surgery for stone removal (p<0.05) but urinary infection was similar in both groups.

Conclusion: Since only 10% of the stones were idiopathic and almost 90% were associated with another pathology, a thorough investigation of the urinary tract to look for underlying disease is mandatory in both nationality categories.

Keywords: Vesical stones, Asir, benign prostatic hyperplasia, migratory

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childhood vesical stones are extremely rare in our hospitals although adult vesical stones form 15% of all urinary stones and 4% of the total urological operative load are seen both in Saudis and non-Saudis. The majority of the latter patients are originally from countries where the disease is still endemic. We seized this opportunity to compare these stones with the pattern of the disease in Saudi patients in order to see whether or not the features are similar to those of primary idiopathic stones which still prevail in the third world. The objective of this study, besides this comparison, was to evaluate the need for routine thorough investigation for underlying urinary

diseases in both nationality categories. We noticed, from our experience in treating these patients, that many attending surgeons in peripheral small hospitals may find it easier to simply remove the vesical stone without searching for the cause.

Patients and methods Ninety-six consecutive patients admitted with vesical stones to Asir Central Hospital (ACH) and Armed Forces Hospital, Southern Region (AFHSR) during a period of five years 1988 to 1993 were retrospectively analyzed. The medical records of these patients were reviewed. Age, sex, nationality, mode of presentation (acute retention of urine,
irritative or obstructive bladder symptoms) were recorded. Associated urinary tract infection defined as significant bacterial growth on urine culture (>10^5 CFU/ml.) or significant pyuria (>10 PC/HPF) was also recorded. The results of imaging procedures carried out (IVU or ultrasonography) and cystoscopy were reviewed to look for associated diseases in the urinary tract and the modality of treatment offered was noted. Saudi and non-Saudi patients were compared as regards to age, sex, mode of presentation, underlying urinary tract diseases, associated infection and the treatment offered. Comparisons between both groups were carried out using the Chi-square or Fisher’s exact test; whichever was appropriate; at the 5% level of significance.

Results There was a total of 56 Saudis and 40 non-Saudi patients. Eighty-three patients were seen at ACH and 13 patients at AFHSR. Some stones were huge whereas others were small and multiple (Figs.1,2).

Age differences Table 1 shows that the peak age in Saudi patients was above 50 years compared to 21 to 30 years in non-Saudi patients (P<0.05). Separate analysis of the 13 patients from the AFHSR confirmed this age pattern in Saudis. Three non-Saudi children below the age of 10 years were encountered but there were no Saudi children.

Aetiological differences Only 10 out of a total of 96 stones (10.5%) were idiopathic; 5 in each group. The stone was considered to be idiopathic when no associated urinary pathology was encountered. Almost 90% of the stones were associated with an underlying urinary pathology which was significantly different in both groups (P<0.05), being mainly BPH in Saudi patients and either an upper urinary tract stone or bilharziasis in non-Saudi patients (Table 2).

Clinical and treatment differences (Table 3). There were 3 Saudi females all of whom were elderly patients with gynaecological problems. No non-Saudi females were encountered. Acute

Fig 1 - IVU showing one large and three small radiolucent stones associated with BPH.

Fig. 2 - Plain X-ray showing multiple small vesical stones filling the urinary bladder in a patient who was discovered to have trilobar BPH.
retention of urine was significantly commoner in non-Saudis (P<0.05). Urinary tract infection rate was almost similar in both groups. Twenty Saudi patients (36%) compared to only 6 non-Saudis (15%) underwent open surgical removal of the stone (P<0.05).

**Discussion**  The pattern of urolithiasis has totally changed in the Western industrialized world. In the last century, urinary stones predominated in children, more than 40% were vesical, less than 20% occurred in females, less than 40% were calcium oxalate and more than 30% were uric acid/urate in composition. This pattern still prevails today in many countries of the third world, such as Thailand, Afghanistan, Nepal, India and many other places due to nutritional factors and poor socio-economic conditions.\(^1,4\) In contrast to this, the 20th century stones of the Western countries occur commonly in adults, less than 10% are vesical, more than 25% occur in females, more than 60% are calcium oxalate and less than 20% are uric acid/urate.\(^3,5\) The population of patients in Saudi Arabia is a mixture of Saudi nationals and non-Saudi expatriates. The style of life has dramatically changed for the better the over last 30 years with improvement in the standard of living among Saudi people. Since many of the non-Saudi patients come from countries where endemic vesical stone disease still prevails, it is plausible to assume that their vesical stones will carry the same features of the stones of their mother homes. This study, however, showed that only 10% of the stones were of the idiopathic endemic type both in Saudis and non-Saudis, indicating that the pattern of stones in the latter patients had been much influenced by the better socio-economic conditions of Saudi Arabia and is no longer similar to that of their country of origin. The only exception to that is the 3 cases of idiopathic vesical stones which were seen in non-Saudi children. Although no childhood Saudi vesical stones were found in this study, they are still seen at present in the developed countries but are almost always secondary to neuropathic bladder disease or congenital anomalies unlike the idiopathic childhood vesical stones of the poor countries.\(^7\) It seems therefore that non-Saudi stones fall somewhere in between the pattern of the industrialized and that of the third world, as had been reported from some other partially developed countries.\(^8,11\)

Two thirds of the vesical stones in Saudi patients occurred above the age of 50 years, even in the military young age community, and were associated with BPH in 75% of the cases like many European countries and the United States.\(^12,14\) On the other hand, in non-Saudi patients vesical stones..
occurred commonly at middle age and were mainly migratory or associated with bilharziasis and only 7.5% occurred above the age of 50 years. This age pattern is perhaps dictated by the structure of the non-Saudi population in the community at large since the majority of the expatriates return to live in their mother country before the age of retirement. Unlike non-Saudis, not many Saudi patients were seen with vesical stones at middle age, even in the military population, perhaps because their upper urinary tract stones were treated early with the easily available minimally invasive procedures such as extracorporeal shock wave lithotripsy well before the stones migrate to the urinary bladder. If Saudi and non-Saudi patients are pooled together in this study, the pattern of their vesical stones would be quite similar to what had been reported from the developed countries where the age presentation shows two distinct peaks; one at middle age which represents migratory stones and another in elderly patients which is usually associated with bladder outflow obstruction.15,18

Urinary tract infection was common both in Saudi and non-Saudi patients. However, the stones in the non-Saudi patients were more amenable to endoscopic treatment since they were mostly small migratory stones unlike the large Saudi vesical stones which usually complicate BPH. The tendency for vesical stones to be smaller and more easily impacted in the vesical neck is, perhaps, also the reason that acute retention of urine was significantly commoner in non-Saudis. The high infection rate makes antibacterial administration imperative; especially with more endoscopic procedures in non-Saudis.

All three females encountered in this study were Saudi patients with gynaecological problems such as vesico-vaginal fistulae similar to what had been reported in previous studies.17 However our male to female ratio was remarkably high at 31:1 compared to other places.

In conclusion, this study confirmed that the pattern of vesical stones in Saudi patients is similar to that of the Western industrialized world. In non-Saudi patients the pattern falls in between that of the developed countries and the third world.

Furthermore in both nationality categories the stones were associated with another urinary tract pathology in more than 90% which indicates that thorough investigation to look for an underlying urinary disease is mandatory. The practice of treating vesical stones in isolation without looking for a cause is not acceptable.

References

الهدف: مقارنة نمط حصيات المثانة البولية في المرضى السعوديين وغير السعوديين لتقسيم الحاجة لإجراء تحليل للكشف عن أمراض قد تكون مسببة لها بالجهاز البولي.

المصادر: دراسة استقصائية تكونت 96 مريضاً متبوعاً يعانون من حصيات المثانة البولية.

المكان: مستشفى عسير الملكي ومستشفى القوات المسلحة بالمنطقة الجنوبية.

المرضى والطرق: قسم المرضى إلى مجموعتين: سعوديين وتشمل 56 مريضاً وغير سعوديين تكون من 40 مريضاً، ثم قورنت المجموعتان من حيث التباين في الأعمار والجنس والخصائص السريرية والحساسات.

النتائج: بلغ مجموع الذكور 93 مريضاً والإثنان ثلاثين فقط كلهم سعوديات مسنات يعاني من أمراض نسائية. كان توزيع مجموعات الأمراض متمايزاً، حيث كانت الدراسة في السعوديين بعد عمر الخمسين وفي غير السعوديين ما بين 21-30 عاماً كان هناك ثلاثة أطفال جميعهم غير سعوديين وانعدم الأطفال بين المرضى السعوديين كانت 10%. من الخصائص ثانوية، بينما أقررت 90% من المرضى بأمراض أخرى تباينت في المجموعتين إذا أقررت الخصائص في السعوديين بضخامة موثقة هيئة بينها كانت مرتبطة أو مفتوحة بالبلدان في غير السعوديين، كما كان العرض الرئيسي في صورة احتباس بولي حاد في غير السعوديين بسبب انتشار الخصائص المرتبطة الأكثر شيوعاً منهم بالأغذية البولي. لوحظ أيضاً شعب الجراحات المفتوحة لإزالة الخصائص في السعوديين غير أن الانتقادات البولية كانت متفاوتة في المجموعتين.

الاستنتاج: ينبغي إجراء استقصاء لمرضى حصيات المثانة البولية من كل الجنسيات للكشف عن أمراض مسببة لها بالجهاز البولي، حيث إن 10% فقط من الخصائص كانت ثانوية و9% مفتوحة بأمراض بولية أخرى قد تكون مسببة لتلك الخصائص.