REMARKS ON A SERIES OF 120 OPERATIONS
FOR VESICAL CALCULI.

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HAVING recently completed a series of 120 operations for the removal of vesical calculi, a brief review of the cases and an exhibition of the specimens will perhaps prove of interest.

SEX.

The operations were performed upon 110 patients, of whom 8 were females and 102 were males, illustrating the much greater frequency of calculus in the latter sex.

AGE.

Twenty-nine patients were under 10 years of age, and of these 6 were three years old, this being the youngest age at which a calculus was met with; 47 patients were between 10 and 50 years of age; 44 patients were over 50 years of age—namely, 17 between 50 and 60 years, 18 between 60 and 70 years, and 9 between 70 and 80 years; the oldest patient was 78 years of age.

NATURE OF OPERATION.

1. *Females*.—In 7 of the 8 females the calculus was extracted through the dilated urethra. In the remaining case it was removed by vaginal lithotomy, this route being selected in preference to the suprapubic, as the bladder was extremely rigid and contracted, and the calculus, which consisted of uric acid, was of large size, measuring $2\frac{1}{2}$ by $1\frac{1}{2}$ in.

2. *Males*.—In 49 patients the calculus was removed by lithotomy, this operation being performed in 14 of the 27 boys, who were under 10 years of age; of the latter, 4 patients were 3 years old, 2 were 4 years old, and 5 were 5 years old; 3 patients were between 5 and 10 years of age.

In 63 cases lithotomy was performed, the lateral operation in 17 patients, and the suprapubic in 46 patients.

MORTALITY.

In 12 patients the operation was followed by a fatal result, giving a mortality of exactly 10 per cent. in the total number of cases operated upon. The unsuccessful cases, all of which occurred in males, were as follows: In the 49 cases treated by lithotomy 1 case was fatal, giving a mortality of almost exactly 2 per cent. for the crushing operations.

The patient in this instance was a gentleman, aged 72 years, who had been a free liver and was of a very gouty habit. The calculus consisted entirely of uric acid and was about $1\frac{1}{2}$ in. in diameter. There was considerable enlargement of the prostate, so that the operation was somewhat prolonged, lasting upwards of an hour. It was followed by coma and suppression of urine, and death took place on the second day from uraemia. No necropsy was made, but though the urine was normal, the kidneys were probably affected with gouty nephritis.

In the 63 lithotomies there were 11 fatal cases; these occurred in the 46 suprapubic operations, the 17 lateral operations all proving successful. This gives a mortality of nearly 24 per cent. for the suprapubic operation, which at first sight seems unusually high. It must be remembered, however, that the cases so treated were all unsuited for lithotomy, the latter operation being contraindicated in each instance—with one exception—on account of the large size of the stone, associated either with enlargement of the prostate and an unhealthy state of the bladder and urine, or with a feeble condition of the patient, in consequence of which the shock of a prolonged crushing operation would not have been well borne.

The fatal result in these cases was due in several instances, when the patients were advanced in years, to sudden heart failure, coming on at some interval after the operation, when all was apparently progressing favourably; in others, as proved by necropsy, it was the result of pre-existing secondary renal disease, death being preceded by suppression of urine and other evidences of uraemia.

The one exception was a boy, aged 8 years, upon whom I performed my first suprapubic operation in 1886. This date was very shortly after suprapubic lithotomy had been revived by Sir H. Thompson, and our experience of the operation was as yet very limited. The bladder and urine being healthy, after removing the stone I sutured the opening in the bladder and then closed the external wound. All went on satisfactorily for some days, when the bladder began to leak;

the urine being unable to escape externally, infiltrated the surrounding tissues, and the boy developed pelvic cellulitis, which proved fatal. Subsequent experience has taught us to leave the external wound open when the bladder is sutured, so that if any leaking should occur there may be an exit for the urine.

As regards the mortality after suprapubic lithotomy, I was somewhat surprised to find that it was so high, not only in my own practice, but also in that of other surgeons.

Jacobson¹ mentions 14 cases of suprapubic lithotomy under his care, of which 4 were fatal, giving a mortality of 28 per cent.

Barling² collected 72 cases of suprapubic lithotomy performed in London and provincial hospitals between 1888 and 1892, the patients all being under 20 years of age, and in 15 instances there was a fatal result, giving a mortality of 20 per cent.

It is also interesting to note that in the practice of Freyer,³ since he has performed lithotomy only in such cases as are unsuitable for lithotrity, lithotomy in the adult (21 cases, with 4 deaths) has been attended by a mortality of nearly 20 per cent.

RECURRENCE.

In 7 patients there was a recurrence of the calculi in the bladder, necessitating further operations. In 1 patient lithotomy was performed three times and lithotrity once in the course of eight years. In another lithotomy was performed once and lithotrity twice in the course of twelve years, an interval of ten years elapsing between the second and third operations. In 2 patients lithotomy and lithotrity were each performed once. In 3 patients lithotrity was performed twice, intervals of from two to five years elapsing between the different operations.

It is interesting to note that in the cases where the calculi recurred 1 patient was in his 50th year, and the others were all over 56 years of age when the first operation was performed. No instance of recurrence was met with in children or in adults under 50 years of age.

The 10 instances of recurrence were met with after five operations for lithotrity, and also after five operations for lithotomy, giving 10 per cent. of recurrences after lithotrity and 8 per cent. after lithotomy. In 2 patients nephrolithotomy was subsequently performed, and calculi were removed from the kidney on each occasion.

FOREIGN BODIES AS NUCLEI.

In 2 instances the nucleus of the calculus was formed by a foreign body. In 1 case—a male, aged 28—it consisted of a piece of a glass rod, which he stated he had accidentally swallowed eight years previously. In the other—a female, aged 37—who had been operated upon three years previously for vesico-vaginal fistula, the nucleus was formed by a silver suture.

SPONTANEOUS FRACTURE.

In one instance there was a good example of this rare complication. The patient, a man, aged 58 years, had frequently passed by the urethra numerous irregular particles, some twice the size of a pea, evidently fragments of fractured phosphatic calculi. Suprapubic lithotomy was performed, and fourteen faceted phosphatic calculi were removed from the bladder, and in addition several fragments of other calculi, which had broken up in its interior, apparently as the result of "concussion" from contact with one another.

ENCYSTED CALCULI.

A typical example of this condition was met with, a number of small calculi being contained in a sacculi the size of a pigeon's egg, situated at the base of the bladder, with the interior of which it communicated by an opening just large enough to admit the tip of the little finger. Calculi were twice removed at an interval of two years from the sacculi by suprapubic lithotomy, and their subsequent formation was then prevented by establishing a permanent suprapubic fistula.⁴

REFERENCES.

¹ *The Operations of Surgery*, 1902, vol. ii, p. 406. ² *BRITISH MEDICAL JOURNAL*, 1894, vol. i, p. 959. ³ *Modern Treatment of Stone*, p. 59. ⁴ *BRITISH MEDICAL JOURNAL*, December 14th, 1895.

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