

Surgery.

ON THE MEANS OF PREVENTING THE FORMATION OF CYSTO-PHOSPHATIC DEPOSITS.

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The operation of lithotripsy is occasionally followed by chronic cystitis with painful symptoms, and by frequently recurring production of the cysto-phosphatic deposits previously described. This condition may persist for a long period, and it may sometimes never wholly disappear. The numerical proportion of these unsatisfactory cases to those which are wholly successful is happily small; and even that may probably be diminished by the exercise of judgment on the part of the operator, and by his conformity to certain rules in operating. There are two points to which it is necessary to pay special attention in order to avoid the unfortunate results in question. The first is, not to apply the crushing operation to any stone of a size beyond that which may be termed strictly moderate, a term which it is difficult to define, but which is designed as a caution against regarding lithotripsy as desirable for calculi of large size; the second is, not to delay unnecessarily subsequent repetitions of the sitting when the stone has been attacked by the lithotrite.

These rules are established by practical experience of the operation; but the correctness of the principles enforced is also exemplified by the pathological observations described in the preceding paper. That which has happened to patients who are troubled long after the operation with recurring concretions is, without doubt, a serious injury to mucous membrane of the bladder, permitting a phosphatic deposit to adhere to some portion of its surface. This deposit increases by aggregation, and is detached in some form as a concretion, which produces symptoms relieved only by its removal. The process is repeated periodically, sometimes with lengthening intervals of time, and with a tendency to cease, if due care be taken, although the term of recovery is often a long one. In other cases, the tendency steadily increases, and the opposite condition follows.

In speaking of injury to the mucous mem-

brane, I by no means imply injury through the use of instruments. Little harm occurs from the modern lithotrite in delicate and careful hands, a remark which does not apply to instruments of early construction. With the latter, injury was often inflicted on the bladder, and strong objections were long entertained to the operation on that account, and very justly so. The causes of injury to the membrane already described as resulting in loss of polish and in roughness, which attracts phosphatic precipitate, are threefold.

First: This morbid change may be caused by the long residences in the bladder of any calculus, particularly one with harsh, uneven surface, and so may have already taken place before the patient seeks relief from the surgeon. In this stage, whatever may be the composition of the stone, the enveloping crust is phosphatic, and the symptoms are severe. Such a condition is no doubt best met by lithotomy, under almost any circumstances.

Secondly: The bladder being healthy, an operator may crush a stone, say of uric acid, but of a size which, although quite within the mechanical power of the lithotrite to crush safely, is still too large to be disposed of in four or even five sittings. There is then some risk that from much contact between the sharp angles of broken stone and the mucous membrane of the bladder, which must take place, abrasions commence, all of which do not heal, and the inner coat is left, at the conclusion of the process, bruised, sore, and slow to recover the natural condition. This might probably have been regained after two or three sittings; but four, five, or six have been more than the membrane could sustain with impunity. With a stone of this size also it is probable that lithotomy would offer equal, if not better, chances of a successful result.

Thirdly: The bladder being healthy at the outset, and the stone not necessarily being large, but one well adapted for successful treatment by lithotripsy, the operator may permit considerable intervals of time to elapse between each sitting. He may do this in the hope of diminishing irritation or inflammation resulting from the previous sitting, desiring not to arouse more disturbance, as he may think, by again applying