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The conventional management of urinary lithiasis has been completely revolutionized in recent years with the introduction of alternative noninvasive techniques which have replaced open surgery in 90% of the cases, at least in the most industrially advanced countries.
The rationale of noninvasive techniques, such as extracorporeal shock wave lithotripsy (ESWL), is based on the wish to reduce the cost of therapy, both from the health care and the economical points of view. Actually, the stone 'per se' is only a symptom, being the sum of the causes that lead to stone formation, the real disease. The removal of the stone is therefore only symptomatic therapy and should be as noninvasive as possible, being unable to avoid recurrence in most cases and repeated surgery for stone surely being harmful for the kidney.

From an economical point of view there is an undeniable advantage in using noninvasive techniques, both in terms of hospital costs and more so of social costs. However, after any revolutionary change, there is a time for critical evaluation of the results and for revisitation of the old and new problems. The different experience of each operator leads to several solutions for each problem and it is often difficult to argue which is the most promising one, distinguishing between false and excessive enthusiasm and out-of-date caution. Controversies have arisen on the new developments of shock wave therapy, the management of ureteral and staghorn stones and the prevention of stone recurrence. These controversies are debated in this volume by the most outstanding experts from all over the world.

The second generation machines, as they are commonly named, have proved their efficacy in stone disintegration in a varied manner. In my opinion the standards of the Dornier HM-3 lithotripter have not been reached, but the new machines have other undeniable advantages. Piezo-electric generators provide anesthesia-free treatment without any effect on cardiac activity. Echographic reperage also allows treatment of radiolucent stones and avoids radiation exposure.

Multifunctional lithotripters can find a useful application in combined percutaneous and extracorporeal treatments, especially if a great number of treatments per day is not required. Future technical developments would provide a very effective, painless, outpatient stone management considering that the pattern of urinary lithiasis is already changing toward early treatment of small-size stones.

Ureteral stones can be managed in several ways: ESWL, percutaneous nephroureteroscopy, retrograde ureterorenoscopy, transurethral sling or basket extraction and open surgery.

By changing the position of the patient ESWL is becoming feasible in all the positions of the ureter. Ureteroscopy, too, has a higher degree of feasibility and can be safely applied especially to stones in the lower ureter.

The combination between these two techniques, in a variable fashion
according to the various authors, seems to leave little place to the other
techniques, even if open surgery should still be advisable in the case of
septic patients in the absence of certain urinary drainage.
Percutaneous debulking followed by repeated ESWL sessions seems to
become the treatment of choice for staghorn stones. Open surgery can
come into play whenever a stenosis of the urinary tract is present and
whenever something goes wrong in the sometimes long course of combined
alternative treatment.
Last but not least, the impact of new techniques has not diminished
the need for a prevention of stone recurrences. Potassium citrate seems to
be the most promising drug for oxalate stone and hydroxamates seem to
offer a good chance also in struvite stones. Hyperparathyroidism is still the
most gratifying diagnosis for the urologist, being the only surgically and
radically curable cause of renal stones.
The interesting and open discussion on this matter, that we had in
Genoa during this course confirmed what I personally feel as of a few
years, that is, that in this transition age, stone patients should be managed
by stone centers which have all the alternative techniques at their disposal
and can choose a line of therapy on the basis of a real cost/benefit ratio.

Luciano Giuliani

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