Cracking urinary bladder stones

Vesical calculi are not common in Britain today, and when they do occur the cause is usually outlet obstruction or a foreign body, such as a stitch, in the bladder. In the past bladder stones were relatively common in northern Europe, and they still are in many parts of the world where diet is inadequate and children suffer from renal calculi.

In the last century the ancient operation of cutting for stone was superseded by transurethral litholapaxy using a lithotrite. Blind crushing of bladder stones is still done today, and many urologists believe the technique is less traumatic than the use of the modern, rather cumbersome cystoscopic lithotrite. Interest has revived recently in an apparatus invented in the 1950s by a Russian engineer, L A Yutkin. Urat 1 is an electronic stone disintegrator, in which a generator converts a current of 220 volts to a low frequency high-impulse discharge; this is passed down a cystoscope, delivering shock waves (in the full bladder) of sufficient force to make stones disintegrate. Undoubtedly the apparatus is highly effective, and it has an obvious place in countries where vesical calculi are common. Patients with stones may be treated as outpatients without a general anaesthetic, while the device can be used with safety by any surgeon who is familiar with a cystoscope.

There are, however, disadvantages. The apparatus is expensive and needs repeated servicing as wear occurs at the tip of the probes. The latter are rather large (10 French), so that the operation cannot be done through small cystoscope sheaths. When transurethreal treatment of stones is indicated most urologists still seem to prefer to use a lithotrite rather than an electronic disintegrator. The Russian apparatus produces an alarming muffled noise, like a machine gun or road drill and somewhat daunting for the patient if he is not anaesthetised. In contrast, in most urologists' hands litholapaxy is quick and safe.

In times of financial stringency it is rarely justifiable to buy equipment that will be used only occasionally and which requires regular servicing. In countries such as Britain the electrolydraulic disintegrator has no clear advantages over other techniques—and in particular it does not solve the problem of ureteric stones. The invention that the lithotomist really needs is a device to break up ureteric stones and so avoid ureterolithotomy and the injudicious use of stone extractors.


Birth weight

In countries such as Britain mothers are choosing to have fewer babies and certainly do not expect to lose a child at birth or in the perinatal period. Along with obstetricians and paediatricians, mothers are increasingly concerned about the quality rather than the quantity of children. The key to lowering of perinatal death rates and the reduction of handicap in survivors is the avoidance of low birth weight. Small size at birth threatens the life of the child and prejudices growth and nonverbal intelligence among apparently normal survivors. From their study of birth, family, and development in Newcastle upon Tyne Neligan and his colleagues had no doubt about the advantages of high birth weight—the short-term advantage of lower perinatal mortality was accompanied by long-term beneficial effects on the physical and mental growth of survivors.

Some babies born at or near term are twice the weight of others. There is no shortage of theories to explain why this should be, but there are relatively few hard facts. Birth weight has been studied extensively because of the guide it gives to the viability of the infant, but the causes of impaired fetal growth are still poorly understood. Though every fetus has a growth potential endowed by its own genes, much that happens during its intrauterine lifetime influences the final outcome. Clearly the length of gestation matters: the shorter the gestation, the more likely the baby is to be under weight at birth. It is important that the fetus be anatomically normal. Sex has an influence on birth weight—the average baby boy at term is 140 g heavier than the girl.

Birth order also has a significant effect on birth weight: on average first babies are 100 g lighter at term than second babies. There is no clear agreement about what happens after the second baby, though in Malta Camilleri and Cremona found a convincing progression of birth weight with increasing parity up to ten. Campbell and MacGillivr have offered physiological reasons for the better performance of multigravidae: women have a larger increase in serum volume in a second as compared with a first pregnancy, and this seems to be related to the production of heavier babies. The maximum expansion of serum volume in the first pregnancy is at 34 weeks or later but as early as 30 weeks in the subsequent pregnancy. Campbell and MacGillivray believe that it is to the advantage of the fetus that the greatest increase in serum volume should be achieved by the 30th week, provided the level is maintained. Their view is that

the better results in multigravidae in terms of serum volume and fetal weight could be due to relatively greater vascularisation and to the easier distensibility of the multigravid uterus.

Other determinants of fetal birth weight commonly discussed are environmental temperature, altitude, nutritional status, exposure to particular diseases, and smoking—all or any of which are likely to explain, at least in part, differences of average birth weight in different ethnic groups. Certain diseases associated with pregnancy—notably moderate or severe pre-eclampsia occurring before term—may lead to low birth weight.

In the individual case birth weight is the result of a complex interplay between many factors. The pressing need is to identify those occasions when something can be done either by the patient or by her family doctor or obstetrician. Examples include stopping smoking, improving the mother’s nutrition, and the early detection and management of antenatal complications likely to result in the premature onset of labour. This means health education and personal responsibility for health, and there can be no doubt about the need for a new impetus and new approach. There is no better example than the hazard posed by smoking in pregnancy. Despite all the publicity given to the adverse effects of smoking after the 1958 British Perinatal Mortality Study,¹ twelve years later there was no evidence to show that the smoking habits of pregnant women had changed.⁸

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**Sensible eating**

If the only reasons for a radical change in the Western diet were medical, then the indifference of governments to the arguments might be understandable. Politicians mirror their constituents’ opinions in their reluctance to alter their habits simply because they are told what would be good for them. But the case for change in what we eat and in our domestic agriculture is being supported—quite independently—by medical, economic, sociological, and agricultural considerations; and the strands have now been brought together in a readable, provocative account¹ by Colin Tudge, the science editor of *World Medicine*.

The medical case is, perhaps, the most difficult because it is multifaceted. Anthropologists are still arguing about the proportion of meat in a “natural” human diet, but few nutritionists now dispute that Western man eats too much meat, too much animal fat and dairy produce, too much refined carbohydrate, and too little dietary fibre. Epidemiological studies of heart disease suggest that some at least of the deaths in middle age from myocardial infarction could be cut by a move towards a more prudent diet—which means more cereals and vegetables and less meat and fat. There is less certainty about the value of polyunsaturated fats and the dangers of food additives and artificial sweeteners and flavours.

On economic grounds, however, the case for a partial switch from meat to cereals is much more clear cut. Kenneth Mellanby showed two years ago that Britain could feed itself if we stopped trying to support 150 million hens, 30 million sheep, and 15 million cattle in addition to the 60 million humans already packed into these islands. Fattening poultry and cattle on expensive grain so that we may all eat meat twice a day is inefficient—it takes, says Mellanby, about 30 lb of cattle feed to produce 1 lb of beef. The best converter of vegetables to animal protein is the hen; even so, the 30 lb of eggs that a hen lays in a year requires a food intake of 100 lb. At present Britain gives two-thirds of its home grown grown to livestock. Food imports are, in fact, unnecessary. Our farm land is productive enough to support 250 million people on a vegetarian diet. Yet despite the transformation of farming to a high pressure industry, farmers now find themselves the victims of external events. Changes in agricultural policy within the EEC, or a mammoth grain harvest in North America, or a bad winter in Russia may tip the financial balance so that a farmer has to switch from cattle to cereals or back or start raising pigs if he is to remain solvent. He neither enjoys freedom to farm in the way he knows is best for his land, nor does he enjoy financial security.¹ And meanwhile, as John Loran has just reminded us again,² the population bomb keeps ticking. After the changes in farming methods of the green revolution and other improvements in food production 500 million of the earth’s citizens still go to bed hungry. The population of the world is 4000 million, but if the food consumption by farm animals is expressed in human terms their demands equivalent to another 15 000 million mouths. To put it simply, the world’s agricultural output is enough to support five times its present population.

A switch to a simpler diet relying more on cereals, beans, and vegetables and less on the products of intensive stock-rearing would then, improve health and reduce economic stresses. This week Oxfam published a pamphlet, *One Crust of Bread*, criticising the “steak house mentality” in affluent societies and arguing that conversion of grain into meat is ethically as well as economically wrong. Colin Tudge argues the detailed case for a return to small-scale horticulture and mixed farming and the abandonment of repetitive farming of cash crops. The counter arguments are all pragmatic. The meat diet makes commercial sense—at least in the short term. Mass production, mass marketing, distribution through freezing plants to supermarkets: the current techniques have grown and flourished in response to laissez faire attitudes by governments. These trends will not be reversed without government intervention—which will not occur so long as governments still believe in limitless economic growth. As that fantasy crumbles it will provide the opportunity to make sense of the way we eat, and the decision by the Minister of Agriculture³ to set up a review of present policies may be a signpost to the future.

⁴ The Times, 5 July 1977.