

SEATO Clinical Research Study on Bladder Stone Disease\*

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GENERAL INFORMATION

Bladder stone disease is the most common surgical problem among inhabitants of North and Northeast Thailand. According to Unakul (1), 26,101 patients were treated in hospitals for urinary calculi between the years 1953 to 1959. Of these, 82% were vesical calculi predominately in children.

The results of a series of investigations from this laboratory comprising 9 papers were recently published in the American Journal of Clinical Nutrition, December 1967 issue. The studies suggested that vesical calculi formation is a disease of young infants and that the nutritional status of the mother and of the youngster somehow contribute to the development of uroliths.

Three findings from the previous urinary studies are of particular interest. It was found that boys under 1 year of age living in Ubol villages (hyper-endemic area) frequently demonstrated oxalate crystalluria and they excreted less inorganic phosphate and less inorganic sulfate than those who lived in Ubol city (hypo-endemic area). It appears likely that the limited excretion of phosphate by village subjects is a reflection of marginal dietary intakes. The low levels of inorganic sulfate found in the urine samples from village infants may reflect low intakes of high quality proteins containing methionine and/or cystine.

Almost everyone who has investigated the bladder stone disease in children has suggested that dietary factors play a role in the disease. This is based partially upon the fact that the disease appears to occur only among children of the poor. The possibility that dietary factors are important in the etiology of the disease is strengthened by the many reports of the production of uroliths in experimental animals subjected to various nutritional deficiencies, including vitamin A and B<sub>6</sub>, magnesium, high quality protein or sulfur-containing amino acids and phosphate.

Since the results from previous studies suggest a marginal intake of high quality protein and phosphate, some insight into the question of factors operating in the etiology of pediatric bladder stone disease was obtained by studies of the influence of a variety of dietary supplements upon the urinary constituents. In addition, chemical compositions of well water consumed by infants and children in different locations of Thailand have also been studied.