

G. Chronic management of hypercalcemia

1. For primary hyperparathyroidism, parathyroidectomy is the only effective therapy. The natural history of asymptomatic hyperparathyroidism is not fully known, but in many patients the disorder has a benign course, with little change in clinical findings or serum calcium concentration for years. The possibility of progressive loss of bone mass and increased risk of fracture are the main concerns, but the likelihood of these outcomes appears to be low. Deterioration of renal function is possible but unlikely in the absence of nephrolithiasis. Currently, it is impossible to predict which patients will develop complications.



a. **Indications for parathyroidectomy** include (1) symptoms caused by hypercalcemia, (2) nephrolithiasis, (3) reduced bone mass (more than 2 standard deviations below the mean for age), (4) serum calcium in excess of 12 mg/dl, (5) age younger than 50 years, and (6) unfeasibility of long-term follow-up (*N Engl J Med* 341:1249, 1999). Surgery is a reasonable choice in healthy patients even if they do not meet these criteria because it has a high success rate, with low morbidity and mortality. However, asymptomatic patients can be followed by assessing clinical status and serum calcium and creatinine levels at 6- to 12-month intervals. Bone mass at the hip should be assessed annually, using dual-energy absorptiometry. Surgery should be recommended if any of the aforementioned criteria develop or if progressive decline in bone mass or renal function occurs.

Guidelines — The 2002 NIH Workshop on Asymptomatic Primary Hyperparathyroidism developed criteria for surgical intervention. These criteria were chosen on the basis of clinical experience and observational data as to which patients are more likely to have end-organ effects (nephrolithiasis, skeletal involvement) and/or disease progression. The panel emphasized the need for parathyroidectomy to be performed by surgeons who are highly experienced and skilled in the operation. The Summary Statement concluded that surgery is indicated in patients who meet the following conditions ([show table 1](#)) [1]:

- Serum calcium concentration of 1.0 mg/dL (0.25 mmol/L) or more above the upper limit of normal.
- Hypercalciuria (urinary calcium excretion greater than 400 mg/day [10 mmol/day] while eating their usual diet).
- Creatinine clearance that is 30 percent or lower than that of age-matched normal subjects.
- Bone density at the hip, lumbar spine, or distal radius that is more than 2.5 standard deviations below peak bone mass (T score <-2.5).
- Age less than 50 years.
- Periodic follow-up anticipated to be difficult.

On the other hand, surgery can be delayed in patients over 50 years of age who are asymptomatic or minimally symptomatic and who have serum calcium concentrations <1.0 mg/dL (0.2 mmol/L) above the upper limit of normal, and in patients who are medically unfit for surgery.