



Parathyroid Surgery: A Letter to Editor

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Awareness of Hypercalcemia

Within the last decades the number of new patients diagnosed with primary hyperparathyroidism (PHPT) has increased dramatically in many countries. This is most likely due to biochemical screening including measurements of plasma calcium (Ca^{2+}). Hypercalcemia and elevated plasma levels of parathyroid hormone (PTH) are still by many clinicians mandatory to diagnose PHPT. However, in cases with normal Ca^{2+} and elevated PTH or elevated Ca^{2+} and normal PTH, the patients are also advised to undergo further examination or control by endocrinologists. In the outpatient setting, the most likely cause of hypercalcemia is PHPT.

In spite of easy diagnosis, there are still reports of insufficient evaluation and examination in clinical practice. In a recent paper [1] the clinical consequences of hypercalcemia was evaluated. Out of 10,432 patients with hypercalcemia (>10.5 mg/dL) only 31% had a subsequent measure of parathyroid hormone (PTH). And despite both elevated PTH and Ca^{2+} only 22% were referred to evaluation by a parathyroid surgeon [1]. However, the only treatment of PHPT is by parathyroidectomy (PTX) with resection of the pathologic gland(s). Surgical cure is in general very high ($>95\%$) and reported number of complications are low. The surgical procedures may differ between countries and surgeons. Most surgeons prefer open unilateral or bilateral exploration with either a classic open approach, minimally invasive, video-assisted endoscopic, or radio-guided. All the various procedures rely on the preoperative localization of the diseased gland and the local experience. Since the procedure is with small incisions and few complications, PTX may even be performed in local anesthesia in an outpatient setting.

Knowledge of Hypercalcemic Evaluation in Clinical Practice

Patients presenting with otherwise asymptomatic hypercalcemia are usually evaluated by an endocrinologist or in private practice. After clinical examination, family history, and medical history, the biochemical evaluation includes renal function, vitamin D status, and repeated measures of PTH and Ca^{2+} . Furthermore, urinary calcium creatinine clearance ratio must be evaluated to exclude familiar hypocalciuric hypercalcemia, which is a genetically inherited disorder causing hypercalcemia without affecting muscle function or quality of life [2]. If the diagnosis PHPT is confirmed with repeated measures of elevated PTH and Ca^{2+} , international guidelines recommend assessment of potential adverse organ affection by measuring bone mineral density (BMD) and a scan for kidney stones or calcifications [3].

Referral to Evaluation by Parathyroid Surgeons

Most experienced endocrinologists know the local parathyroid surgeons. Internationally, there are differences between parathyroid surgeons concerning their background surgical training. Commonly, the procedures are in public hospitals. However, occasionally surgeons also perform PTX in private hospitals. Regardless of specialty and hospital, the surgeon must have a documented high quality concerning cure rate and a low complication rate.

After scan(s) regarding the preoperative localization, the possible risks and benefits are explained. All patients may be offered an operation, but the indication is not always clear. With only mildly elevated Ca^{2+} and without symptoms or organ manifestations, the patient may be followed without PTX. In this case, both age and co-morbidities must be taken into account. Since PHPT is a benign disease some patients may be restrained to undergo surgery and many clinicians agree. In a study of 421 physicians, the proportion of physicians who referred PHPT patients to PTX varied across Europe from 32 to 66% despite fulfilling criteria for operation [4].

Documentation of Beneficial Effects after Parathyroidectomy

Patients with classic symptomatic PHPT clearly benefit from PTX. Even in PHPT patients with mild disease, there is evidence of increasing BMD after PTX [5,6] and preoperatively both muscle

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strength and function seems to be negatively affected compared with controls [7]. After surgical cure by PTX, both muscle function and health related quality of life improve [8]. Many other beneficial effects might follow concerning fracture risk reduction, reduction in number of kidney stones, improving sleep disturbances etc.

Who would not Benefit from Parathyroidectomy?

With increasing age, the patients with PHPT are more likely to have osteoporosis. And since osteoporosis is one of the well-known complications to PHPT, these patients may be recommended to undergo PTX. However, antiresorptive therapy may be a reasonable alternative in some of these cases [3]. This and other clinical controversies require further exploration. Do we have a maximum age for patients referred to PTX? Do patients with mild or even normocalcemic PHPT benefit from PTX regarding cognition, quality of life, and improvements in the musculoskeletal systems?

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