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Primary Hyperparathyroidism: Series of 83 Cases

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Abstract

Primary hyperparathyroidism corresponds to inappropriate overproduction of parathyroid hormone. It is a predominantly female disease and is often asymptomatic. Diagnosis is based solely on biological findings, and curative treatment is surgical.

This is a retrospective observational study including 83 patients hospitalized and followed for primary hyperparathyroidism in the endocrinology departments of the University Hospital Center of Rabat and Mohamed V Military Hospital over a 7-year period (2015–2022).

Keywords: Primary Hyperparathyroidism; Osteoporosis; Adenoma; Hypercalcemia; Multiple Endocrine Neoplasia Type 1; Morocco

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Introduction

Primary hyperparathyroidism (PHPT) is a common endocrine disorder defined by inappropriate hypersecretion of parathyroid hormone (PTH) by one or more pathological parathyroid glands, resulting in hypercalcemia [1].

Hypercalcemia may be diagnosed in several ways but is often discovered incidentally during laboratory testing or in the context of complications such as bone or renal disease. Currently, PHPT is frequently diagnosed at asymptomatic stages due to increasing requests for calcium–phosphate testing.

PHPT is sporadic in most cases (95%). It is caused by a single parathyroid adenoma in 85% of cases, multiple adenomas in 4%, parathyroid hyperplasia in 10–15%, and parathyroid carcinoma in less than 1% of cases [2]. Hereditary hyperparathyroidism, such as multiple endocrine neoplasia (MEN) type 1 or 2A and isolated familial hyperparathyroidism, accounts for approximately 5% of cases [3].

Surgical treatment is indicated in young patients and in symptomatic patients or those with renal and/or skeletal complications, provided that calcium levels can be normalized. Asymptomatic patients require regular biological monitoring [4].

The aim of this study was to evaluate the epidemiological, clinical, paraclinical, and therapeutic characteristics of patients hospitalized and followed for PHPT at the University Hospital Center of Rabat and Mohamed V Military Hospital over a 7-year period (2015–2022).

Materials and Methods

This retrospective study was conducted in the Departments of Endocrinology and Metabolic Diseases of Ibn Sina University Hospital and Mohamed V Military Hospital in Rabat over a 7-year period (2015–2022).

The diagnosis of PHPT was based on the association of hypercalcemia with elevated serum PTH (1–84). Localization diagnosis relied on cervical ultrasound, supplemented when necessary by CT scan, sestamibi scintigraphy, MRI, or PET scan using 18F-fluorocholine.

The following data were collected: epidemiological (sex, age, history of cervical irradiation, sporadic or familial form, associated disorders), diagnostic (time to diagnosis, circumstances of discovery, clinical, biological, radiological, and histopathological findings), therapeutic (medical treatment, surgery, observation), and outcome data.

Results

The mean age of patients was 53.27 ± 16.86 years, with a female predominance of 90.4% (Figure 1).

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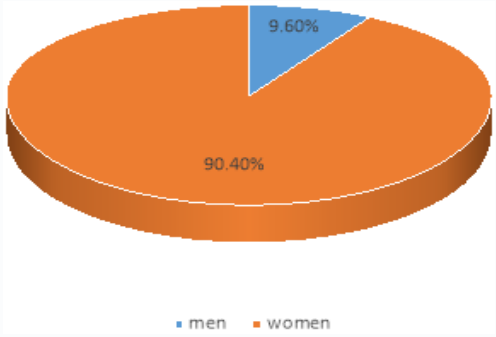


Figure 1: Sex distribution of patients with PHPT.

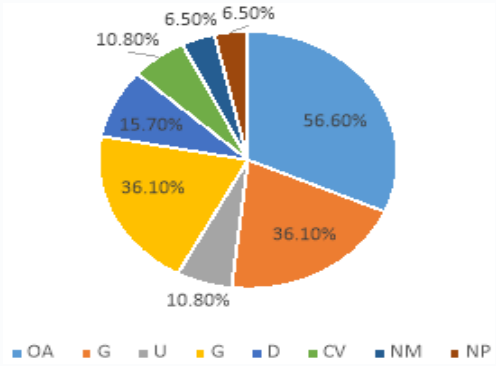


Figure 2: Distribution of clinical manifestations of PHPT.

Clinical presentation was variable, with osteoarticular manifestations in 56.6% of cases, urinary signs in 10.8%, and general symptoms in 36.1%. PHPT was asymptomatic in 39.7% of cases (Figure 2).

OA: osteoarticular signs; G: general signs; U: urinary signs; D: digestive signs; CV: cardiovascular signs; NP: neuropsychiatric signs; NM: neuromuscular signs.

Mean serum calcium level was 122.8 ± 21.4 mg/L and was normal in 9.6% of cases. PTH levels were elevated in all patients, with a mean of 261.7 ± 186.8 pg/mL.

Cervical ultrasound was performed in all patients, with a sensitivity of 89.1%. Sestamibi scintigraphy was performed in 64 patients, with a sensitivity of 92%.

Surgical treatment was performed in 79 patients (95.18%). Histopathological examination showed parathyroid adenoma in most cases.

Postoperative outcomes included hypoparathyroidism in 29 patients (34.9%), hungry bone syndrome in 3 patients (3.6%), one case of transient recurrent nerve palsy, one case of persistent PHPT requiring three surgeries with remission, one case of operative mortality of unknown cause, and three cases of recurrence due to ectopic parathyroid adenoma.

Discussion

PHPT may occur at any age; however, its incidence increases significantly in adulthood, particularly among women aged 50–60 years [5]. In our study, the mean age at diagnosis was 53.2 years, with a marked female predominance (90.4%), 60% of whom were postmenopausal, consistent with published data [5, 9].

The sporadic form accounts for the majority of PHPT cases, while 5–10% correspond to familial forms, particularly in the context of MEN type 1 or 2A or isolated familial hyperparathyroidism [3, 6]. Our series confirms this distribution.

Although PHPT is asymptomatic in approximately 80% of cases [7], clinical manifestations may involve musculoskeletal, renal, digestive, cardiovascular, or neuropsychiatric systems [8].

In our study, 39.7% of cases were diagnosed incidentally during routine testing, suggesting delayed diagnosis and highlighting the importance of systematic calcium measurement, especially in postmenopausal women [7,20].

Osteoarticular manifestations were the most frequent (56.6%), similar to findings reported by Niasse [9]. Urinary manifestations were present in 10.8% of cases, consistent with Dang's series [10]. Digestive symptoms (15.7%) and general signs (36.1%) were comparable to previously reported data [10, 11].

Diagnosis was confirmed by inappropriately elevated or high-normal PTH levels in the presence of hypercalcemia [12]. Preoperative localization studies showed good sensitivity, consistent with international data [14–16].

Parathyroidectomy remains the definitive treatment for PHPT. Surgical indications for asymptomatic forms follow the recommendations of the Fifth International Workshop (2022) [17].

Recent recommendations, particularly the 2024 SFE Consensus, confirm these criteria and emphasize prioritizing ionized calcium in cases of diagnostic uncertainty, systematic bone and renal evaluation, and the central role of surgery when clinical impact or risk of progression exists [19].

In non-operated patients, medical treatment including vitamin D supplementation was initiated according to international recommendations to prevent bone demineralization and stabilize PTH levels [18]. Regular follow-up was performed to detect complications early, particularly cardiac rhythm disorders and renal or skeletal involvement [20].

This study highlights the female predominance of PHPT and the importance of early diagnosis through systematic calcium screening to prevent renal, skeletal, and cardiovascular complications.

Conclusion

PHPT is a predominantly female disease with varied and suggestive clinical manifestations. Systematic measurement of serum calcium, even in the presence of mild symptoms, is essential for early diagnosis.

Diagnosis is confirmed by elevated calcium levels associated with elevated or inappropriately normal PTH levels and normal or increased calciuria.

Cervical ultrasound and parathyroid scintigraphy are recommended as first-line imaging modalities. Surgical indications have recently been revised based on international consensus, and intraoperative PTH measurement is useful to ensure surgical efficacy.

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