

Acute Parathyroid Storm Secondary to Parathyroid Adenoma: A Case Report

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ABSTRACT

Hypercalcemic hyperparathyroid crisis is an infrequent but life threatening complication of main hyperparathyroidism. It is an infrequent manifestation for primary hyperparathyroidism by reason of parathyroid adenoma presenting with parathyroid storm. Acute hypercalcemic hyperparathyroid crisis is a rapidly developing syndrome characterized by severe hypercalcemia associated with life threatening disturbances in cardiac, renal, cerebral functions. This state should be doubted in acutely ill cases with gastrointestinal appearances, profound dehydration, changed mental state, urinary signs or cardiac arrhythmias. We offer this patients to give emphasis to the significance management of an acute hypercalcemic syndrome and early diagnosis as a result of primary hyperparathyroidism as a cause of an undefined adenoma of the parathyroid gland. We present this patients to give emphasis on early and rigorous treatment of hypercalcemic crisis as a result of parathyroid storm otherwise it could be fatal.

Key Words: Hypercalcemia; Acute Parathyroid; Storm; Parathyroid Adenoma

INTRODUCTION

Severe hypocalcaemia most commonly results from malignant tumours, but also can result from primary hyperparathyroidism. Parathyroid carcinoma is an infrequent malignancy with an incidence of 4% to 0.5% of informed cases of primary hyperparathyroidism.^[1,2] Hypercalcemic crisis is a state concerning the decompensation of hypercalcemia associated with life threatening disturbances in cerebral, gastrointestinal, cardiac, and renal functions. The most cases of hypercalcemic crisis reason by primary hyperparathyroidism which is then called parathyrotoxic crisis.^[3] Hypercalcemic hyperparathyroid crisis is an infrequent but life threatening complication of hyperparathyroidism.^[4] Symptoms contain vomiting, nausea, severe dehydration, confusion, lethargy and even coma. Parathyroid storm or parathyroid intoxications is a condition involving the acute decompensation of hypercalcemia.^[5] Acute hypercalcemic hyperparathyroid crisis is a rapidly developing syndrome characterized by severe hypercalcemia associated with life threatening disturbances in cardiac, renal, cerebral functions. This state should be doubted in acutely ill patients with gastrointestinal appearances, severe dehydration, changed mental state, urinary signs or cardiac arrhythmias. The first case of parathyroid storm was reported by Hanes.^[6]

We present this patients to accentuate the prominence of early diagnosis and treatment of an acute hypercalcemic syndrome as a result of primary hyperparathyroidism as a significance of an undiagnosed adenoma of the parathyroid gland.

CASE REPORT

A 38 years old Caucasian woman presented to emergency department with the complaints of polyuria, polydipsia, and lethargy for two week. She was somnolent when admitted to hospital and her Glasgow score was 13. On physical examination, her blood pressure and pulse rate were 120/78 mmHg and 78 /minute

respectively. Physical examination revealed 18 x 18 mm left inferior thyroidal mobile nodule. Laboratory analysis revealed high serum calcium level of 20.6 mg/dl (8.0-10.4 mg/dl) and parathyroid hormone level of 1813 pg/ml (15-65 pg/ml) Following intensive haemodialysis, intravenous hydration, furosemide and calcitonin treatment for 1 days; calcium levels were still high 18.4 mg/dl. Intravenous 4 mg pamidronate was given to the patient that effectively reduced calcium to normal laboratory reference level. Parathyroid ultrasonography revealed 11x18x21 mm thyroid left inferior pole located mass compatible with parathyroid adenoma. A 99m Tc-Sestamibi parathyroid scan revealed parathyroid adenoma. Electrocardiogram revealed, noting else other than hypercalcemic findings. Parathyroidectomy was performed to the patient who revealed 11x18x21 mm parathyroid adenoma. Post-surgical hypocalcaemia was treated with calcium supplementation, which was probably caused by hungry bone syndrome and bifosphonate treatment.

DISCUSSION

Although palpable cervical mass has been informed in 76 % to 30% in cases with parathyroid carcinoma, it is clearly unusual in cases with parathyroid adenoma.^[7] There are dissimilar treatment modalities for preoperative localization of parathyroid mass. Generally first line localization modality is parathyroid ultrasonography. The other modalities are 99m Tc-Sestamibi scan, parathyroid MRI and PET CT. Four dimensional CT is perfect tool for that allows for an exact preoperative localization of hyper functioning parathyroid glands.^[8] Acute hyperparathyroidism, otherwise known as parathyroid storm is an infrequent but potentially life threatening condition if unrecognized. The term acute hyperparathyroidism, parathyroid crisis, and parathyroid storm could be used alternatively for defining fulminant presentation of primary hyperparathyroidism. Parathyroid crisis is characterized by marked mental disturbances, astronomic serum calcium and parathyroid

hormone levels. Although the exact mechanism of hypercalcemic crisis is not known; some potential mechanisms are haemorrhage into parathyroid adenoma, volume contraction, and stress from intercurrent disease.^[9] When hypercalcemia reaches a critical grade, two organs are at risk for decompensation. Polyuria develops into oliguria and eventually anuria leading to renal failure which in case of untreated hypercalcemia is deadly. The added organ at risk is brain to which clinically somnolence and even coma is the insult. Although appropriate diagnosis and effective treatment of hypercalcemia reduce mortality; its mortality is generally still high. Definitive treatment is the resection of the tumour. Aggressive treatment of hypercalcemia, electrolyte and fluid status should have to be instituted before diagnostic work-up for hypercalcemic hyperparathyroid crisis otherwise it could be fatal. Correction of hydration is the foundation stone of the acute therapy. Loop diuretics might be used to isotonic solution after extracellular fluid volume has been filled. Intravenous calcitonin and biphosphanate reduce calcium level by interfering with calcium extrication from skeleton. Postoperative persistent hypocalcaemia should have not to be forgotten following parathyroidectomy in patients who have taken biphosphanate treatment before surgery. In case of resistance to conventional modalities haemodialysis with dialysate with low or zero calcium can be used. A decrease in serum calcium level should be estimated in first 24 hour post-operative period. The half-life of PTH is short that serum levels falls within minutes following successful surgery. Our patient PTH level fell from 1813 pg/ml preoperatively 150 pg/ml immediate postoperative period. It is an infrequent manifestation for primary hyperparathyroidism due to parathyroid adenoma presenting with

parathyroid storm. We emphasize the importance of early and intensive treatment of hypercalcemic crisis due to parathyroid storm otherwise it could be fatal.

CONCLUSION

Emphasis must be given to early and rigorous treatment of hypercalcemic crisis as a result of parathyroid storm otherwise it could be fatal.

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