CASE REPORT

Parathyroidectomy in the presence of central venous stenosis

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SUMMARY

Hyperparathyroidism is common in the end-stage renal failure and may require surgical intervention. In addition, following multiple vascular access attempts central venous stenosis may occur. The results in high-volume venous blood flow through neck collaterals. Here, we describe a case of severe secondary hyperparathyroidism, high flow arteriovenous fistula and central venous occlusion unresponsive to radiological intervention. A four-gland exploration was undertaken and global parathyroidectomy was performed. Despite meticulous attention to haemostasis, blood loss was considerable from the skin edges although thyroid veins were easily controlled with a drop of 2.1 g/dl in haemoglobin. Postoperative hypocalcaemia requiring intravenous calcium occurred as expected from the severity of his bone disease (preoperative parathyroid hormone (PTH) 26 times the upper normal range). The patient recovered well, despite a small subcutaneous haematoma and remains asymptomatic.

BACKGROUND

There are no reports of parathyroidectomy in the presence of central venous stenosis and arteriovenous flow via neck collaterals and there may be reluctance to refer or operate in this setting. This case supports surgical treatment in this setting which resulted in a cure while maintaining his dialysis access.

CASE PRESENTATION

A 63-year-old man with end-stage renal failure secondary to focal segmental glomerulosclerosis presented with increasing debilitating joint pain and difficulty in walking. He had a failed transplant owing to focal segmental glomerulosclerosis recurrence; following a history of repeated central venous cannulation, he had central venous stenosis in his left subclavian vein. Despite this, his left arm brachiocephalic fistula had high outflow with marked collateralisation draining via the neck vessels (figure 1).

His hyperparathyroidism was severe with a parathyroid hormone (PTH) of 108.6 pmol/l (normal range 1.1–4.2 pmol/l), and had failed control with calcimimetic therapy (Cinacalcet 90 mg). A surgical approach was used with a collar incision. Despite grossly enlarged veins in the skin and thyroid, a four-gland exploration was possible, and following the control of the skin edges and collateral veins a bloodless field was obtained. Both recurrent laryngeal nerves were visualised and safely preserved.

Figure 1 The patient's venogram of his central veins showing a stenosis at the brachiocephalic vein and marked collateralisation.

A global parathyroidectomy was performed with a histology revealing quadriglandular parathyroid gland hyperplasia with secondary retrogressive changes, in keeping with secondary hyperparathyroidism.

The patient made a good recovery with a postoperative PTH of 1.3 pmol/l and symptom relief.

A small subcutaneous haematoma occurred, requiring a simple drainage.

INVESTIGATIONS

In the setting of distended superficial veins in a renal patient referred for parathyroidectomy, a venogram is essential to guide the surgery.

As a four-gland exploration is performed for parathyroidectomy, preoperative localisation investigations, ^{99m}Tc sestamibi scans, are not routine practice.¹

TREATMENT

In renal bone disease, failure of medical therapy is an indication for parathyroidectomy. Although it may be perceived that an arteriovenous fistula draining via neck collaterals in the presence of a central stenosis is a contraindication to neck exploration, this case illustrates a successful outcome.

OUTCOME AND FOLLOW-UP

The patient was discharged following 6 days of intravenous calcium replacement. On discharge, he was asymptomatic and his PTH was below normal range (0.6 pmol/l).

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DISCUSSION

With the common occurrence of bone disease and central venous stenoses in renal patients, it is surprising that there are no similar published cases in the literature. It may be that there is a reluctance to refer and operate on such cases.

As this patient had problematic vascular access, ligating his fistula preoperatively was not an option.

The relatively large blood loss that occurred was from distended veins in the skin edges rather than from collaterals within the neck which were easily controlled.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCE

- 1 Wei C, Harari A. Parathyroid carcinoma: update and guidelines for management. *Curr Treat Options Oncol* 2012;13:11–23.

Learning points

- ▶ Parathyroidectomy should be considered in patients with central venous stenosis and fistula drainage via neck collaterals.
- ▶ High-volume bleeding is a risk, and preoperatively haemoglobin should be optimised.
- ▶ Imaging with a venogram preoperatively is essential to guide surgical approaches.

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