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Recurrent Primary Hyperparathyroidism: Management Challenges

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Abstract

Recurrent primary hyperparathyroidism (recHPT) is defined as the return of hypercalcemia more than six months after an initially successful parathyroidectomy. Despite advancements in surgical techniques and imaging modalities, recHPT continues to pose significant management challenges, with recurrence rates reported between 2.5% and 10%.

This review aims to discuss the etiology, diagnostic evaluation, and management strategies for recHPT, emphasizing the importance of a multidisciplinary approach in optimizing outcomes.

The most common causes include missed or ectopic parathyroid glands, multiglandular disease, and surgeon inexperience. Rare etiologies such as parathyromatosis and parathyroid carcinoma should also be considered.

Diagnosis requires exclusion of secondary hyperparathyroidism and familial hypocalciuric hypercalcemia through comprehensive biochemical assessment and appropriate imaging. Advanced preoperative localization studies-including high-resolution neck ultrasonography, 99mTc-sestamibi SPECT-CT, 4D-CT or MRI, and newer modalities such as 18F-fluorocholine PET/CT or PET/MRI-play a pivotal role in identifying abnormal glands.

Reoperative parathyroid surgery remains the definitive treatment; however, it is technically demanding and carries increased operative risks. Therefore, surgical indications should be carefully reviewed in a multidisciplinary setting, balancing potential benefits against procedural risks. For patients who are unsuitable for surgery, medical management with calcimimetics, bisphosphonates, or denosumab may be considered as alternative therapeutic options.

Recurrent primary hyperparathyroidism continues to present diagnostic and therapeutic challenges despite technological advances. A systematic, multidisciplinary approach-combining precise localization, expert surgical planning, and individualized medical therapy-is essential for optimal long-term outcomes.
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