

Minimally Invasive Intervention for Head and Neck Lesion:

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Minimally invasive procedures aimed at diagnosing and treating various head and neck disorders with reduced morbidity compared to traditional open surgery. Benefits are shorter hospital stays and faster recovery, improved functional and aesthetic outcomes, and decreased postop pain and blood loss. However, some challenges are present such as complex regional anatomy and proximity to vital structures (nerves, trachea, esophagus, and major vessels).

Ultrasound is first-line modality due to high resolution and real-time tracking of needle tip/instrument throughout the procedure, and allows visualization of vital structures to ensure safety. There is no radiation exposure. US guided procedures are cost-effective and often performed on an outpatient basis.

Diagnostic interventions are fine needle aspiration (FNA) and core needle biopsy (CNB). Therapeutic interventions are percutaneous ethanol ablation (EA), Radiofrequency ablation (RFA) for cystic and solid lesions of the head and neck such as cystic and solid thyroid nodule, branchial cleft cyst, ranula, dermoid cyst, lymphatic malformation, venous malformation, metastatic thyroid cancer, alone or in both ways.

We have to know US anatomy of the neck before performing the procedures to prevent procedure related complication.

In summary, US-guided interventions for head and neck lesions deliver high diagnostic precision, significant volume reduction (50-85% within 1 year for benign thyroid nodule, over 90% for benign cystic lesions), and excellent safety profiles, while maximizing patient's quality of life through functional and cosmetic preservation with low complication rate.