



Evaluation & Management of a Patient with Thyroid and Parathyroid Disease

Description of the Activity	<p>General surgeons are expected to evaluate and manage patients who present with signs and symptoms of thyroid or parathyroid disease, primarily in the outpatient setting. The surgeons must be able to accurately and cost-effectively diagnose and treat adult patients with common thyroid and parathyroid diseases and recognize complex thyroid/parathyroid disease that requires specialist referral.</p>
Functions	<ul style="list-style-type: none">❖ Nonoperative/Preoperative<ul style="list-style-type: none">➤ Synthesize essential information from a patient's records, history, physical examination, and initial diagnostic evaluations to develop a differential diagnosis.➤ Complete a cost-effective, evidence-based diagnostic evaluation for thyroid or parathyroid disease, including biochemical testing and imaging studies as indicated.➤ Identify indications for thyroid nodule fine-needle aspiration biopsy, and interpret the results.➤ Communicate a diagnosis and potential treatment options to the patient/caregiver(s) and consultants.➤ Recognize the need for specialist referral for a patient with complex thyroid or parathyroid disease (eg, medullary or anaplastic thyroid cancer, multiple endocrine neoplasia syndromes).➤ Formulate a plan for medical management of hypo- and hyperthyroidism in the perioperative period.➤ Select an operative procedure based on the indication for surgery, taking into account patient preferences.➤ For an anticoagulated patient, understand the significance of the indication, and apply an algorithm for discontinuation and resumption in the perioperative period.➤ Discuss the indications, risks, benefits, alternatives, and potential complications of the planned operation, including nuances relevant to the patient's individual condition and comorbidities. Ensure patient understanding, and document this discussion.❖ Intraoperative<ul style="list-style-type: none">➤ Manage the perioperative environment, including room setup, equipment check, preprocedural time-out, specimen processing, counts, wound classification, and debriefing functions.➤ Perform the procedures required to manage common thyroid and parathyroid disease.<ul style="list-style-type: none">▪ Position the patient to expose the neck.▪ Visualize tissue planes, and identify and dissect relevant normal and abnormal anatomy.▪ Perform total thyroidectomy and thyroid lobectomy.<ul style="list-style-type: none">• Carefully mobilize the thyroid gland while protecting critical structures, including the recurrent laryngeal nerve.• Preserve parathyroid glands during dissection of the thyroid gland, including their blood supply. If unable to preserve them, perform parathyroid autotransplantation.▪ Perform parathyroid exploration.<ul style="list-style-type: none">• Identify the normal anatomic position of superior and inferior parathyroid glands, as well as common anatomic variants (eg, carotid sheath, thymus, thyrothymic ligament, tracheoesophageal groove).• Assess parathyroid glands for normal versus adenomatous appearance.• Interpret results of intraoperative parathyroid hormone (PTH) testing, if used.➤ Adapt operative steps and the operative plan to new information discovered intraoperatively.



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	<ul style="list-style-type: none">• Devascularized parathyroid gland after dissection of thyroid• Lack of expected drop in PTH level on intraoperative PTH testing, if used• Unexpected suspicious adenopathy <ul style="list-style-type: none">➤ Coordinate with the anesthesia and nursing teams and other perioperative health care professionals regarding the use of intraoperative adjuncts.➤ Create and maintain an intraoperative environment that promotes patient-centered care. <p>❖ Postoperative</p> <ul style="list-style-type: none">➤ Oversee routine postoperative care, including indications for calcium or thyroid hormone supplementation.➤ Describe the indications for radioactive iodine adjuvant treatment for thyroid cancer.➤ Develop a plan for surveillance after the initial treatment of thyroid cancer.➤ Communicate with the patient/caregiver(s) to ensure understanding of postoperative instructions and their ability to carry out the resultant plan.➤ Articulate a plan for managing common early and late complications related to thyroid and parathyroid procedures, including:<ul style="list-style-type: none">▪ Hoarseness or vocal changes▪ Hypocalcemia▪ Laryngeal nerve injuries, including bilateral nerve dysfunction▪ Neck hematoma or seroma▪ Persistent or recurrent primary hyperparathyroidism
Scope	<p>❖ In-scope diagnoses</p> <ul style="list-style-type: none">➤ Thyroid disease<ul style="list-style-type: none">▪ Follicular neoplasm▪ Hyperthyroidism▪ Papillary thyroid cancer▪ Thyroid nodule➤ Parathyroid disease<ul style="list-style-type: none">▪ Primary hyperparathyroidism <p>❖ Out-of-scope diagnoses</p> <ul style="list-style-type: none">➤ Hypercalcemia of malignancy <p>❖ In-scope procedures</p> <ul style="list-style-type: none">➤ Parathyroid gland autotransplantation➤ Parathyroidectomy➤ Thyroid lobectomy➤ Total thyroidectomy



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- ❖ Out-of-scope procedures
 - Lateral neck dissection
 - Minimally invasive thyroidectomy
 - Reoperative neck operation
 - Subtotal thyroidectomy



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<p style="text-align: center;">1</p> <p style="text-align: center;"><u>Limited Participation</u></p> <p>Demonstrates understanding of information and has very basic skills</p> <p style="text-align: center;"><u>Framework:</u> What a learner directly out of medical school should know</p> <p>The attending can show and tell.</p>	<ul style="list-style-type: none"> Obtains an H&P relevant to thyroid/parathyroid disease (eg, symptoms of thyroid hormone deficiency/excess or primary hyperparathyroidism) with cultural humility Orders basic thyroid and parathyroid function tests (TSH, free T4, PTH, calcium), requiring assistance for a comprehensive workup Develops a differential for a patient with a thyroid nodule, neck mass, or hypercalcemia that includes common disorders Identifies relevant evidence-based guidelines for the management of thyroid and parathyroid disease 	<ul style="list-style-type: none"> Identifies normal neck anatomy but needs assistance to identify normal parathyroid glands Describes the expected route of the recurrent laryngeal nerves Assists with positioning a patient to expose the neck Performs initial steps of the operation, such as dividing the layers of the neck down to the relevant tissue, with direct instruction, requiring prompting to identify the appropriate plane Assists with exposure for dissection of the thyroid and parathyroid glands Reapproximates the soft tissues with direct guidance Displays coordinated hand movements for simple maneuvers, though inefficiently and under direct instruction Respectfully engages in culturally sensitive communication with all members of the OR team Demonstrates uncertainty about the necessary equipment for the operation 	<ul style="list-style-type: none"> Writes postop orders, provides PACU staff with contact information, and reviews postop lab studies, requiring assistance to interpret Describes common complications of thyroid and parathyroid operations Demonstrates understanding of the need for thyroid hormone and calcium supplementation and selects the dose with assistance Reviews pathology results Attends and, if requested, presents at an interdisciplinary conference Respectfully requests a consultation with endocrinology or radiation oncology for ongoing treatment Accesses evidence-based guidelines for surveillance of differentiated thyroid cancer
<p style="text-align: center;">2</p> <p style="text-align: center;"><u>Direct Supervision</u></p> <p>Demonstrates understanding of the steps of the operation but requires direction through principles and does not know the nuances of a basic case</p>	<ul style="list-style-type: none"> Evaluates a patient presenting with thyroid disease/nodule, ordering and interpreting lab testing (eg, thyroid-related labs inclusive of antithyroid antibodies, thyroglobulin, and antithyroglobulin antibody if indicated) and imaging/biopsy results as indicated (eg, ultrasound, FNA) 	<ul style="list-style-type: none"> Positions a patient to expose the neck Performs initial steps of the operation, dividing the layers of the neck down to the relevant tissue, identifying tissue planes in the neck, and exposing the thyroid and parathyroid glands 	<ul style="list-style-type: none"> Oversees routine postop care, including use of multimodal pain management strategies Recognizes common postop complications such as hematoma, seroma, and infection, requiring assistance to manage them



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<p>Framework: The learner can use the tools but may not know exactly what, where, or how to do it.</p> <p>The attending gives active help throughout the case to maintain forward progression.</p>	<p>indications, Bethesda classification of thyroid cytopathology)</p> <ul style="list-style-type: none"> • Articulates a comprehensive thyroid nodule workup • Diagnoses straightforward primary hyperparathyroidism in a patient based on lab evaluation • Describes some high-risk features of thyroid nodules on ultrasound • Elicits patient preferences to guide evidence-based care 	<ul style="list-style-type: none"> • Requires prompting to continue making progress during a straightforward operation • Usually demonstrates careful tissue handling and coordination of both hands • Interprets straightforward results of intraoperative PTH testing, if used • Clearly communicates with all members of the OR team • Identifies the standard equipment for the operation but requires assistance to coordinate with perioperative staff to ensure it is available • Identifies abnormal anatomy of the neck • Describes normal anatomic positions of the superior and inferior parathyroid glands but usually requires assistance to identify normal parathyroid glands; describes some locations of ectopic glands • Identifies the recurrent laryngeal nerve and describes location of a nonrecurrent inferior laryngeal nerve 	<ul style="list-style-type: none"> • Oversees routine postop care, including determining need for and dose of calcium or thyroid hormone supplementation • Recognizes signs and symptoms of common complications of thyroid and parathyroid operations • Communicates a postop plan to a patient/caregiver(s) and other health care team members for a benign condition • Verbalizes steps to manage a postop neck hematoma with airway compromise • Describes the utility of RAI therapy and TSH suppression in thyroid cancer • Plans surveillance of differentiated thyroid cancer with assistance • Assists with patient-specific barriers to care • Attends and participates in an interdisciplinary cancer care conference • Describes some elements of evidence-based guidelines for surveillance of differentiated thyroid cancer
<p>3</p> <p>Indirect Supervision Can do a basic operation but will not recognize abnormalities and</p>	<ul style="list-style-type: none"> • Describes high- and low-risk patterns of thyroid nodules on ultrasound • Integrates results of a diagnostic workup to formulate a treatment plan, including indications for operative intervention for a patient with hyperparathyroidism, 	<ul style="list-style-type: none"> • Moves fluidly through the course of a straightforward thyroid or parathyroid operation and anticipates next steps without prompting 	<ul style="list-style-type: none"> • Evaluates and manages common early and late complications of thyroid and parathyroid operations, including hypocalcemia, hoarseness or



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<p>does not understand the nuances of an advanced case</p> <p>Framework: The learner can perform the operation in straightforward circumstances.</p> <p>The attending gives passive help. This help may be given while scrubbed for more complex cases or during a check-in for more routine cases.</p>	<p>straightforward thyroid nodules, or suspected thyroid cancer</p> <ul style="list-style-type: none"> Formulates a plan for medical management of straightforward hypo- and hyperthyroidism in the perioperative setting Articulates indications for molecular testing of indeterminate thyroid nodules and interprets the results, if used Demonstrates understanding of key differences in complex disease presentations, such as Graves disease or thyroid storm, and the use of medical or surgical management Applies a cost-effective, evidence-based diagnostic evaluation for thyroid and parathyroid disease Applies current guideline-based indications for operative treatment of primary hyperparathyroidism 	<ul style="list-style-type: none"> Smoothly dissects through the layers of the neck down to the relevant structures, visualizing tissue planes and adapting tissue handling based on tissue quality Identifies a preoperatively localized parathyroid gland but requires assistance to locate all glands Identifies and dissects the recurrent laryngeal nerve in a straightforward thyroidectomy Interprets intraoperative PTH testing when the level increases or fails to drop, if used Describes most sites of ectopic parathyroid glands Describes potential intraoperative adjuncts (eg, ET tube for nerve monitoring, access and timing of blood draws for intraoperative PTH, gamma probe) 	<p>vocal changes, and laryngeal nerve injury</p> <ul style="list-style-type: none"> Verbalizes general indications for RAI treatment and TSH suppression Communicates a postop plan to a patient/caregiver(s) and other health care team members for differentiated thyroid cancer or complicated hyperparathyroidism Offers constructive feedback to students or junior residents Assists in coordinating an interdisciplinary cancer care conference Identifies collaborating specialties to help formulate a postop plan of care (eg, endocrinology, nuclear medicine) Reviews pathology results and recognizes features that indicate high-risk disease Describes a guideline-adherent plan for surveillance after initial treatment of differentiated thyroid cancer
<p>4</p> <p>Practice Ready</p> <p>Can manage more complex patient presentations and operations and take care of most cases</p>	<ul style="list-style-type: none"> Formulates a comprehensive plan for a patient with papillary and follicular thyroid cancer, including indications for central and lateral neck dissection Manages a patient with thyroid and parathyroid disease presenting with complex comorbidities or complicating factors such as anticoagulation or immunosuppression 	<ul style="list-style-type: none"> Mobilizes the thyroid gland while identifying and protecting critical structures, including the recurrent laryngeal nerve and parathyroid glands; manages challenging anatomy or difficult dissections calmly and thoughtfully Identifies most or all parathyroid glands and can differentiate normal and abnormal glands 	<ul style="list-style-type: none"> Quickly responds to complex or high-acuity postop emergencies such as an expanding neck hematoma Makes an individualized and evidence-based plan for RAI treatment and TSH suppression based on patient-specific risk Ensures participation of collaborating specialties and



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<p>Framework: The learner can treat all common thyroid and parathyroid disease and has a strong understanding of surgical and medical options for different presentations.</p> <p>The attending is available at the request of the learner but is not routinely needed for common presentations, though input may be needed for more complex presentations.</p>	<ul style="list-style-type: none">• Diagnoses an unusual presentation of primary hyperparathyroidism (eg, normohormonal and normocalcemic hyperparathyroidism) based on an advanced understanding of lab evaluation• Articulates indications for nodal dissection in a patient with thyroid malignancy• Proposes referral to specialists for a patient with complex thyroid and parathyroid disease (eg, advanced thyroid cancer, MEN syndromes, suspected parathyroid carcinoma)• Describes the expected outcome of nonoperative management of papillary thyroid cancer and selects a patient for whom that would be an evidence-based option	<ul style="list-style-type: none">• Modifies the surgical plan based on new information discovered intraoperatively (eg, unexpected suspicious adenopathy, extrathyroidal invasion, lack of expected drop in PTH level, devascularized parathyroid gland after thyroid dissection)• Describes operative maneuvers to identify ectopic parathyroid glands• Coordinates with other members of the OR team to use intraoperative adjuncts effectively, if used (eg, ET tube for nerve monitoring, access and timing of blood draws for intraoperative PTH, gamma probe)• Communicates with others clearly and respectfully, even in crisis situations (eg, airway difficulty, unexpected bleeding, decompression of expanding neck hematoma)• Identifies normal parathyroid glands and recurrent laryngeal nerves in a complex case (eg, large thyroid goiter or mass)	<p>coordinates their recommendations at an interdisciplinary cancer care conference to synthesize a patient care plan, resolving conflict when needed</p> <ul style="list-style-type: none">• Offers constructive feedback to superiors in addition to peers and other learners• Critically appraises and applies evidence, adapting to complex clinical scenarios and tailoring recommendations to a patient's preferences and needs• Describes an evidence-based plan for surveillance after initial treatment of differentiated thyroid cancer