

Index

A

- Ablative therapies, 123
 - alcohol ablation, 127–128
 - percutaneous laser ablation (PLA), 126–127
 - radiofrequency ablation, 124–126
- Acute thyroiditis, 69–70, 72
- Adjuvant therapy
 - EBRT, 421–423
 - external beam radiation therapy in, 411–413
 - radioactive iodine in, 409–410
- Afirma gene expression classifier test, 266
- Alcohol ablation, 127–128
- American Thyroid Association (ATA), 104, 221
 - differentiated thyroid cancer, 333–334
 - low-risk thyroid cancer, 256
 - WDTC risk stratification, 298–299
- American Thyroid Association (ATA) Surgery Working Group, 242
- Antithyroid drugs
 - efficacy, 122
 - mechanism of action, 122
 - pretreatment with RAI, 118–119
 - side effects, 122–123
- Antitumor activity, direct, 442–443
- Anxiety, around surgery, 353–354
- Arterial involvement, 408–409
- Atrial fibrillation, 345
- Atypia of undetermined significance/follicular lesion of undetermined significance (AUS/FLUS)
 - definition, 72
 - intranuclear cytoplasmic invaginations, 74

- not otherwise specified, 75
 - papillary thyroid carcinoma, 73
 - with predominance of Hürthle cells, 74
 - with prominent microfollicles, 74
 - wastebasket diagnosis, 72
- Axitinib, 437–438

B

- Benign thyroid nodules
 - large nodule, 106–109
 - long-term monitoring of, 104
 - molecular testing role, 109–110
 - repeat FNA value of, 104–106
 - surveillance of, 103
- Bethesda system for reporting cytopathology (BSRTC)
 - AUS/FLUS
 - definition, 72
 - intranuclear cytoplasmic invaginations, 74
 - not otherwise specified, 75
 - papillary thyroid carcinoma, 73
 - with predominance of Hürthle cells, 74
 - with prominent microfollicles, 74
 - wastebasket diagnosis, 72
 - fine needle aspiration
 - atypical/indeterminate categories, 60
 - benign, 65–68
 - colloid, 61
 - components of, 60–62
 - diagnostic categories, 62–68
 - follicular cells, 60–61
 - inflammatory cells, 61
 - macrophages, 62

- Bethesda (*Cont*)
- nondiagnostic/unsatisfactory, 62–65
 - oncocyctic (Hürthle) cells, 61
 - sensitivity and specificity, 59
 - stromal and vascular components, 62
 - thyroiditis, 68–71
 - follicular neoplasm/suspicious
 - bland hypercellular follicular lesions, 76–77
 - Hürthle cell neoplasias, 77–79
 - microfollicular lesions with nuclear atypia, 77
 - not otherwise specified, 79–80
 - malignant
 - medullary thyroid carcinoma, 83–84
 - papillary thyroid carcinoma, 82–83
 - poorly differentiated thyroid carcinoma, 84–85
 - primary lymphoma, 85–86
 - secondary tumors, 86
 - squamous cell carcinoma, 85
 - undifferentiated (anaplastic) thyroid carcinoma, 85
 - National Cancer Institute (NCI), 60
 - suspicious for malignancy, 80–81
- Bone loss, 344–345
- BRAF-MEK signaling pathway
 - direct antitumor activity, 442–443
 - redifferentiation strategy, 440–441
 - selumetinib, 440–441
- BRAF**, 266
- mutations in, 222
- C**
- Cabozantinib, 439
- Calcitriol, 288–289
- Calcium carbonate, 288
- Calcium citrate, 288
- Calcium gluconate, 288
- Calcium management, after thyroidectomy
 - calcium and vitamin D supplementation, 287–289
 - hypocalcemia and associated abnormalities, 284–285
 - hypocalcemia treatment, 289–290
 - intraoperative considerations, 286–287
 - permanent hypoparathyroidism, 290–291
 - postoperative considerations, 287
 - preoperative considerations, 285–286
- Cancer mortality, 242, 246, 247
- Cancer recurrence, 242
- Central compartment lymph nodes
 - indications, 244–250
 - preoperative sonographic staging, 243–244
 - reoperation, 250
- Central compartment neck dissection (CCND)
 - anatomic boundaries, 242
 - complications of, 249–250
 - indications, 244–245
 - locoregional recurrence, 245–246
 - prophylactic, 243
 - radioactive iodine use, 247–248
 - serum thyroglobulin, 245
 - survival, 246–247
 - therapeutic, 242–243
- Central node dissection, elective ipsilateral, 238
- Cervical lymph node metastases
 - nonsurgical therapies, 259
 - recurrent diseases, 256, 260
 - reoperative neck dissection, 257–259
- Cholecalciferol, 288
- Clinician-performed ultrasonography, 26–27
- Cometriq. *See* Cabozantinib
- Complementary and alternative medical (CAM) therapies, 352
- Computed tomography (CT)
 - differentiated thyroid cancer, 341
 - thyroid cancer, 95–97
- Cytotoxic chemotherapy, 444
- D**
- Dabrafenib, 440–443
- Diagnostic whole-body scintigraphy (dWBS), 208
- Differentiated thyroid cancer (DTC)
 - in children (*see* Thyroid cancer, in children)
 - clinical trials in, 445–446
 - cytotoxic chemotherapy, 444
 - epidemiology, 331–332
 - imaging modalities
 - CT and MRI, 341
 - nuclear medicine imaging, 340–341
 - PET scan, 341
 - ultrasound, 339–340
 - prognosis, 332
 - randomized phase II–III clinical trials
 - lenvatinib, 434–435
 - sorafenib, 435–436
 - vandetanib, 436–437
 - single-arm phase II clinical trials
 - axitinib, 437–438
 - cabozantinib, 439
 - pazopanib, 438
 - sunitinib, 439

- surveillance
 - high-risk patients, 334
 - intermediate-risk patients, 333–334
 - long-term surveillance, 336–338
 - low-risk patients, 333
 - post initial therapy, 335–336
 - thyroglobulin, 338–339
 - TSH suppression
 - atrial fibrillation, 345
 - bone loss, 344–345
 - goals and rationale, 342–343
 - symptoms of hyperthyroidism, 345
 - Direct antitumor activity, 442–443
 - Direct laryngoscopy, 279
- E**
- Elective ipsilateral central node dissection, 238
 - Emotional recovery, from thyroidectomy, 354–355
 - Esophagus, 402–403
 - Ethanol ablation, recurrent WDTC, 259
 - European Thyroid Association (ETA), 244
 - Everolimus, 443
 - External beam radiation therapy (EBRT), 411–413
 - adjuvant therapy, 421–423
 - metastatic disease, 425–429
 - radiation therapy, 423–425
 - unresectable cancer in neck, 420–421
 - Extrathyroidal extension, 421
 - Extrathyroidal muscles involvement, 398–399
 - Extrathyroidal spread, 413–414
- F**
- Fatigue, 359
 - Fine needle aspiration (FNA), 221
 - BSRTC
 - acute thyroiditis, 69–70
 - atypical/indeterminate categories, 60
 - benign, 65–68
 - colloid, 61
 - components of, 60–62
 - diagnostic categories, 62–68
 - follicular cells, 60–61
 - granulomatous thyroiditis, 69
 - Graves' disease, 70–71
 - Hashimoto thyroiditis, 68–69
 - inflammatory cells, 61
 - macrophages, 62
 - nondiagnostic/unsatisfactory, 62–65
 - oncocyctic (Hürthle) cells, 61
 - Riedel thyroiditis, 71
 - sensitivity and specificity, 59
 - stromal and vascular components, 62
 - thyroiditis, 68–71
 - Hürthle cell carcinoma diagnosis, 382, 383
 - thyroid nodule biopsy, 47, 50
 - by palpation, 50–51
 - by ultrasonography, 51–53
 - Flexible laryngoscopy, 279, 280
 - Follicular lesion of undetermined significance (FLUS), molecular markers, 237
 - Follicular neoplasm, molecular markers, 237
 - Follicular neoplasm/suspicious, BSRTC
 - bland hypercellular follicular lesions, 76–77
 - Hürthle cell neoplasias, 77–79
 - microfollicular lesions with nuclear atypia, 77
 - not otherwise specified, 79–80
 - Follicular thyroid carcinoma (FTC)
 - fine-needle aspiration biopsy, 382, 383
 - follow-up, 389–390
 - molecular markers, 382–383
 - pathological diagnosis, 384–386
 - prognosis, 390–391
 - radioactive iodine treatment, 389
 - surgical management, 386–388
 - TSH suppression therapy, 388–389
 - ultrasonography, 380–381
- G**
- Goiter
 - toxic multinodular, 138–141
 - toxic solitary, 141
 - Granulomatous thyroiditis, 69
 - Graves' disease, 70–71
- H**
- Hashimoto thyroiditis, 68–69
 - Hoarseness, 279
 - Hürthle cell carcinoma (HCC)
 - diagnosis
 - fine-needle aspiration biopsy, 382, 383
 - molecular markers, 382–383
 - pathological diagnosis, 384–386
 - ultrasonography, 380–381
 - follow-up, 389–390
 - prognosis, 390–391
 - radioactive iodine treatment, 389
 - surgical management, 386–388
 - TSH suppression therapy, 388–389

- Hyperthyroidism, 285
 autonomously functioning thyroid nodules, 115
 Marine-Lenhart syndrome/nodular Graves, 115
 radioactive iodine (¹³¹I), 116
 risk of, 119–120
 surgery, 133
 symptoms of, 345
 toxic multinodular goiter, 115
- Hypocalcemia
 and associated abnormalities, 284–285
 transient, 249, 250
 treatment, 289–290
- Hypoparathyroidism, 249, 250, 290–291
- I**
- ¹³¹I therapy
 practical issues, 204–205
 radioactive iodine (RAI), 297 (*see also* Radioiodine ablation treatment)
- Indeterminate thyroid nodules
 clinical management recommendations
 AUS/FLUS, 156
 FN/SFN, 156–157
 SUSP, 157
 risk factors
 clinical, 150–151
 imaging, 152–153
 molecular, 153–156
 treatment options, 148–150
- Indirect mirror laryngoscopy, 279
- Inlyta. *See* Axitinib
- Intranuclear cytoplasmic invaginations (INCI), 74
- Iodine-123(¹²³I), 24
- L**
- Larynx
 anatomy of, 274
 cricoid cartilage involvement, 399–400
 thyroid cartilage involvement, 399
- Lenvatinib, 434–435
- Levothyroxine
 and liothyronine combined therapy, 362–367
 monotherapy, 360–362
- Ligament of Berry, 277
- Locally advanced thyroid cancer
 adjuvant therapy
 external beam radiation therapy in, 411–413
 radioactive iodine in, 409–410
 arterial involvement, 408–409
 definition of, 395–396
 extrathyroidal muscles involvement, 398–399
 extrathyroidal spread, 413–414
 larynx
 cricoid cartilage involvement, 399–400
 thyroid cartilage involvement, 399
 management of, 396–397
 pharynx and esophagus, 402–403
 preoperative evaluation
 examination, 397–398
 history, 397
 preoperative workup, 398
 recurrent laryngeal nerve, 403–405
 reconstruction of, 405–407
 tracheal involvement, 400–402
 venous involvement, 408
- Low-risk papillary thyroid carcinoma (low-risk PTC)
 ATA risk stratification system, 232
 financial cost, 238
 local recurrence, 237
 molecular markers, 237
 patient preference, 238
 perioperative morbidity, 233–234
 preoperative identification, 231
 radioactive iodine, 234
 surveillance, 234
 survival differences, between TL and TT, 234–237
 thyroid lobectomy, 232–233
 total thyroidectomy, 233, 234
- Lymph node, ultrasound exam, 36–37
 benign sonographic appearance, 37–38
 calcifications, 39
 chaotic Doppler flow in malignant node, 41
 cystic degeneration, 39
 echogenicity, 38
 embryonic remnants, 41
 heterogeneous malignant node, 39
 malignant sonographic appearance, 38–41
 microcalcifications, malignant node, 40
 parathyroid adenoma, transverse and sagittal views, 42
 partially cystic malignant lymph node, 40

- pharyngoesophageal diverticulum, 41
 - thyroglossal cyst, transverse and sagittal views, 42
 - thyroglossal duct, 41
- M**
- Magnetic resonance imaging (MRI),
 - differentiated thyroid cancer, 341
 - thyroid cancer, 97
 - Marine–Lenhart syndrome, 115, 121
 - Medullary thyroid carcinoma (MTC), 83–84, 436
 - MEK inhibitor, 440–441
 - Metastatic disease, EBRT, 425–429
 - Microcalcifications, malignant node, 40
 - Mindfulness-based stress reduction (MBSR), 369
 - Minimally invasive
 - follicular thyroid carcinoma (MIFTC), 380
 - Molecular markers, Hürthle cell carcinoma diagnosis, 382–383
 - mTOR pathway, 443
 - Multikinase inhibitor (MKI)
 - BRAF-MEK signaling pathway
 - direct antitumor activity, 442–443
 - redifferentiation strategy, 440–441
 - FDA-approved agents, 434
 - mTOR pathway, 443
 - VEGFR pathway, 434
 - Muscle weakness, 359
- N**
- National Cancer Institute (NCI), BSRTC, 60
 - Neck anatomy, cervical lymph node level, 17
 - Neuropraxia, 277
 - Nexavar. *See* Sorafenib
 - Nodular Graves' disease
 - diagnosis, 134
 - parathyroid gland, 138
 - surgical practices, 136
 - thyroidectomy, technical aspects of, 137
 - treatment options, 134–135
 - Nodular hyperthyroidism. *See* Hyperthyroidism
 - Nuclear medicine imaging,
 - differentiated thyroid cancer, 340–341
- P**
- Papillary carcinoma, 400
 - Papillary thyroid cancer (PTC)
 - in children (*see* Thyroid cancer, in children)
 - dynamic staging, 180–181
 - intraoperative assessment
 - lymph node assessment, 177–178
 - thyroid gland assessment, 176
 - postoperative assessment, 178–180
 - preoperative assessment
 - histopathology, 173–175
 - molecular profiling, 175–176
 - physical examination, 171–172
 - preoperative imaging, 172–173
 - risk factors, 167–171
 - staging for, 165–166
 - Papillary thyroid carcinoma, 73, 82–83. *See also* Low-risk papillary thyroid carcinoma (low-risk PTC)
 - Papillary thyroid microcarcinomas (PTMCs), 219
 - active observation, 225–227
 - incidence, 220–222
 - management, 222
 - molecular biology, 222
 - radioactive iodine, 224–225
 - surgical management, 223–224
 - Paralysis, vocal cord, 279, 281
 - Parathyroid adenoma, transverse and sagittal views, 42
 - Parathyroid hormone (PTH), 284
 - Paresis, vocal cord, 278
 - Pazopanib, 438
 - Percutaneous laser ablation (PLA), 126–127
 - Permanent hypoparathyroidism, 290–291
 - Pharyngoesophageal diverticulum, 41
 - Pharynx, 402–403
 - Phonoscopy, 279–280
 - Poorly differentiated thyroid carcinoma (PDTC), 84–85
 - Positron emission tomography (PET)
 - differentiated thyroid cancer, 341
 - thyroid cancer, 97–98
 - with FDG, 341
 - Pregnancy
 - thyroid cancer, 267–268
 - thyroid hormone changes, 268–269
 - thyroid nodule
 - evaluation, 264–265
 - indeterminate cytology, 266–267

- Primary lymphoma, 85–86
- Prophylactic central
 compartment neck dissection
 (pCCND), 243, 244
- PTMCs. *See* Papillary thyroid
 microcarcinomas (PTMCs)
- R**
- Radiation therapy, 423–425
- Radioactive iodine (RAI) therapy,
 224–225, 234
 in adjuvant therapy, 409–410
 antithyroid drugs, pretreatment with,
 118–119
 cancer risk, 120
 in CCND, 247–248
 contraindications, 120
 efficacy, 116
 factors associated, 117–118
 Hürthle cell carcinoma, 389
 Marine-Lenhart syndrome, 121
 mortality and CVD mortality risk, 121
 recombinant human TSH (rhTSH), 119
 recurrent/persistent thyroid cancer
 complications and side effects, 324–325
 diagnosis of, 316–319
 dosing, 323–324
 indications for, 319–321
 preparation, 321–322
 thyroid autoimmunity induction, 121
 thyroid cancer in children
¹³¹I therapy, practical issues, 204–205
 risks, 205–206
- Radiofrequency ablation (RFA)
 ablative therapies role, 124–126
 recurrent WDTC, 259
- Radioiodine ablation treatment
 complications of, 308–309
 dosing, 304–307
 history, 297
 nuclear imaging, 303–304
 outcomes, 307
 patient selection, 300
 posttreatment follow-up, 307
 potential risks of, 308
 sodium-iodide symporter, 298
 in thyroid cancer, 298
 thyroid stimulation prior to, 301–303
 well-differentiated thyroid cancer, 298–299
- RAS oncogenes, 109, 155, 267
- Recombinant human thyrotropin (rhTSH),
 119, 301
- Recurrent laryngeal nerve (RLN)
 anatomy, 274–276
 locally advanced DTC, 403–405
 identification during thyroidectomy, 275
 injury, 249
 intraoperative nerve monitoring, 278–279
 reconstruction of, 405–407
 transection of, 277
- Recurrent/persistent thyroid cancer, 256, 260
 complications and side effects, 324–325
 diagnosis of, 316–319
 dosing, 323–324
 indications for, 319–321
 preparation, 321–322
- Relaxation and guided imagery, 369
- Remnant ablation, 298
- Riedel thyroiditis, 71
- S**
- Secondary tumors, 86
- Selumetinib, 440–441
- Sialadenitis, 324–325
- Sodium-iodide symporter (NIS), 24, 298
- Sorafenib, 435–436
 everolimus and, 443
- Squamous cell carcinoma (SQC), 85
- Stereotactic radiotherapy, 426
- Stress, around surgery, 353–354
- Stretch injuries, 277
- Stroboscopy (phonoscopy), 279–280
- Sunitinib, 439
- Superior laryngeal nerve
 anatomy, 275, 276
 intraoperative nerve monitoring, 278–279
- Surveillance, differentiated thyroid cancer
 high-risk patients, 334
 intermediate-risk patients, 333–334
 long-term surveillance, 336–338
 low-risk patients, 333
 post initial therapy, 335–336
 thyroglobulin, 338–339
- Sutent, 439
- T**
- ^{99m}Tc-pertechnetate, 24
- Tevothyroxine therapy, thyroid cancer in
 children, 206–207
- Therapeutic central compartment neck
 dissection, 242–244
- Thyroglobulin (Tg), 207–208
 assessment in pregnancy, 268
 in recurrent/persistent thyroid cancer,
 316–317
 surveillance in differentiated thyroid
 cancer, 338–339

- Thyroglossal cyst, transverse and sagittal views, 42
- Thyroglossal duct, 41
- Thyroid autoimmunity induction, 121
- Thyroid cancer
- in children
 - diagnostic whole-body scintigraphy, 208
 - follow-up care, 207
 - levothyroxine therapy, 206–207
 - nodule evaluation, 201–202
 - prevalence, 200
 - radioactive iodine therapy, 203–206
 - risk factors for, 200–201
 - staging, 203
 - surgical options, 202–203
 - thyroglobulin, 207–208
 - ultrasonography, 208
 - computed tomography, 95–97
 - incidence of, 1
 - in older adults, 2
 - proposed explanations for rise in, 4–6
 - race groups, 2
 - SEER data, 2
 - in women, 1–2
 - initial preoperative evaluation for, 95
 - magnetic resonance imaging, 97
 - origin of, 2–3
 - positron emission tomography, 97–98
 - proposed explanations for rise in
 - novel risk factors, 5
 - overdiagnosis, 5–6
 - risk factors for, 3–4
 - staging systems, 166–167
 - surveillance, persistent/recurrent, 98–100
- Thyroidectomy
- calcium management
 - calcium and vitamin D supplementation, 287–289
 - hypocalcemia and associated abnormalities, 284–285
 - hypocalcemia treatment, 289–290
 - intraoperative considerations, 286–287
 - permanent hypoparathyroidism, 290–291
 - postoperative considerations, 287
 - preoperative considerations, 285–286
- holistic and integrative approaches
- complementary therapies, 357–359
 - levothyroxine and liothyronine, 362–367
 - physical and emotional recovery, 354–355
 - during radioiodine therapy, 367–368
 - rationale for, 351–352
 - stress and anxiety around surgery, 353–354
 - supplements and vitamin D status, 352–353
 - thyroid hormone replacement, 360–362
 - weight gain, understanding and avoidance of, 355–357
- perioperative management of voice
- anatomy, 274–277
 - intraoperative considerations, 276–278
 - intraoperative nerve monitoring, 278–279
 - nerve dysfunction diagnosis, 279–282
 - vocal cord dysfunction treatment, 281–283
 - technical aspects of, 137
- Thyroid hormone
- pregnancy, changes during, 268–269
 - replacement, levothyroxine monotherapy, 360–362
- Thyroid hormone withdrawal (THW), 301, 321–322
- Thyroiditis
- acute thyroiditis, 69–70
 - granulomatous thyroiditis, 69
 - Graves' disease, 70–71
 - Hashimoto thyroiditis, 68–69
 - Riedel thyroiditis, 71
- Thyroid lobectomy (TL), 232–233
- cost analysis, 238
 - surgical risks, 234
 - survival differences between TT and, 234–237
- Thyroid nodular disease, 263–264
- Thyroid nodule
- anterior, 13
 - biopsy
 - complications, 54–57
 - fine-needle aspiration (FNA), 47, 50
 - fine-needle aspiration (FNA): by palpation, 50–51
 - fine-needle aspiration (FNA): by ultrasonography, 51–53
 - indications, 48–49
 - materials required, 49–50
 - specimen processing, 53–54
 - clinical studies, 20
 - diagnostic algorithm for, 25
 - differential diagnosis, 19
 - family history and cancer syndromes, 16
 - hereditary thyroid cancer syndrome, 15
 - hyperfunctional, 15
 - indeterminate (*see* Indeterminate thyroid nodules)
 - initial evaluation of

- Thyroid (*Cont*)
- incidentally detected, 94
 - indefinite, 95
 - iodine exposure, 17
 - physical assessment, 14
 - physical examination, 17–19
 - neck anatomy, 17
 - one hand method, 19
 - two hand method, 18
 - prevalence of, 23
 - radiation exposure, 16
 - suspicion nodules
 - benign, 36
 - high, 35
 - intermediate, 35
 - low, 35
 - very low, 36
 - symptoms, 14–16
 - ultrasound exam
 - composition, 28–29
 - indications for FNA, 36
 - number, 28–29
 - shape, 29–31
 - size, 28–29
- Thyroid scintigraphy
- initial approach, 25–26
 - thyroid nodules assessment, 24
- Thyroid-stimulating hormone (TSH)
- replacement, 360–362
 - stimulation, 321–322
 - suppression
 - atrial fibrillation, 345
 - bone loss, 344–345
 - goals and rationale, 342–343
 - symptoms of hyperthyroidism, 345
 - suppression therapy, Hürthle cell carcinoma, 388–389
- Thyroid surgery
- complications of, 189–190
 - historical perspective, 188–189
 - hospital volume, 190–192
 - outcomes, 190–192
 - surgeon volume, 190–192
 - on management of patients, 194–195
 - pediatrics, experience for, 195–196
 - and thyroidectomy, 192–194
- Thyrotropin, 267
- Total thyroidectomy (TT), 223, 233, 234
- cost analysis, 238
 - vs. TL, survival differences, 234–237
- Toxic multinodular goiter (TMNG), 115, 138–141
- Toxic solitary goiter, 141
- Tracheal involvement, 400–402
- Transcutaneous laryngeal ultrasound, 280–281
- Tyrosine kinase inhibitor (TKI) therapy, 435
- U**
- Ultrasonography
- benign US findings, 34
 - calcifications, 31–33
 - in central compartment lymph nodes, 243–244
 - differentiated thyroid cancer, 339–340
 - echogenicity, 29
 - Hürthle cell carcinoma diagnosis, 380–381
 - lymph node evaluation, 36–37
 - benign sonographic appearance, 37–38
 - calcifications, 39
 - chaotic Doppler flow in malignant node, 41
 - cystic degeneration, 39
 - echogenicity, 38
 - embryonic remnants, 41
 - heterogeneous malignant node, 39
 - malignant sonographic appearance, 38–41
 - microcalcifications, malignant node, 40
 - parathyroid adenoma, transverse and sagittal views, 42
 - partially cystic malignant lymph node, 40
 - pharyngoesophageal diverticulum, 41
 - thyroglossal cyst, transverse and sagittal views, 42
 - thyroglossal duct, 41
 - nodules
 - composition, 28–29
 - indications for FNA, 36
 - number, 28–29
 - shape, 29–31
 - size, 28–29
 - pattern recognition, 34–35
 - performance of, 27
 - pregnancy, thyroid nodules in, 264
 - sonographic risk stratification, 27
 - suspicion nodules
 - benign, 36
 - high, 35
 - intermediate, 35
 - low, 35
 - very low, 36
 - thyroid cancer in children, 208
 - vascularity, 33

Ultrasound-guided fine needle
aspiration (UG-FNA), pregnancy,
264–265
Undifferentiated (anaplastic) thyroid
carcinoma (UTC), 85
Unresectable cancer, EBRT, 420–421

V

Vandetanib, 436–437
VEGFR pathway, 434
Vemurafenib, 442
Venous involvement, 408
Vitamin D
deficiency, holistic and integrative
approaches, 352–353
supplementation, 287–289
Vitamin D3 (cholecalciferol), 288
Vocal cords
inspection, 279
treatment for dysfunction, 281–283
Voice, perioperative management in
thyroidectomy
anatomy, 274–277
intraoperative considerations, 276–278
intraoperative nerve monitoring, 278–279

nerve dysfunction diagnosis, 279–282
vocal cord dysfunction treatment, 281–283
Votrient, 438

W

Weight gain, understanding and avoidance of,
355–357
Well-differentiated thyroid cancer (WDTC)
distant recurrence, 260
intervention, 256
nonsurgical therapies, 259
radioactive iodine treatment, 300, 305–306
(*see also* Radioiodine ablation
treatment)
recurrent disease detection, 256
reoperative neck dissection
central neck, 257–258
reoperative lateral neck dissection,
258–259
technique, 257
risk stratification by ATA, 298–299
Whole-body scintigraphy (WBS), 317, 319,
340
Widely invasive follicular thyroid carcinomas
(WIFTC), 380