

**Carcinoma Differenziato della Tiroide:
dalla diagnosi al follow-up**
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**Importanza della stadiazione
pre-operatoria**

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Prognostic indicators in differentiated thyroid carcinoma

The biology of thyroid cancer represents a spectrum of behavior ranging from well differentiated thyroid lesions with an excellent prognosis to anaplastic carcinoma....It is important that clinicians have methods at their disposal to assess the behavior of a patient's thyroid malignancy.

DS Dean & ID Hay, Cancer Control 2000



La valutazione prognostica dei pazienti con carcinoma tiroideo è fondamentale per:

- **Definire una appropriata strategia terapeutica**

Estensione della chirurgia

Indicazione al trattamento ablativo con ^{131}I



- **Definire una appropriata strategia di follow-up**

Evitare un eccessivo impiego di risorse

Non sottovalutare i pazienti con potenziale progressione di malattia



Valutazione del rischio nei pazienti con DTC: setting operativi

1. Valutazione pre-chirurgica

Patient-related factors: Età, sesso, storia anamnestica

Tumor-related factors: dimensione, estensione, profilo cito(isto)-patologico, markers

2. Valutazione post-chirurgica

Tumor-related factors: Istologia

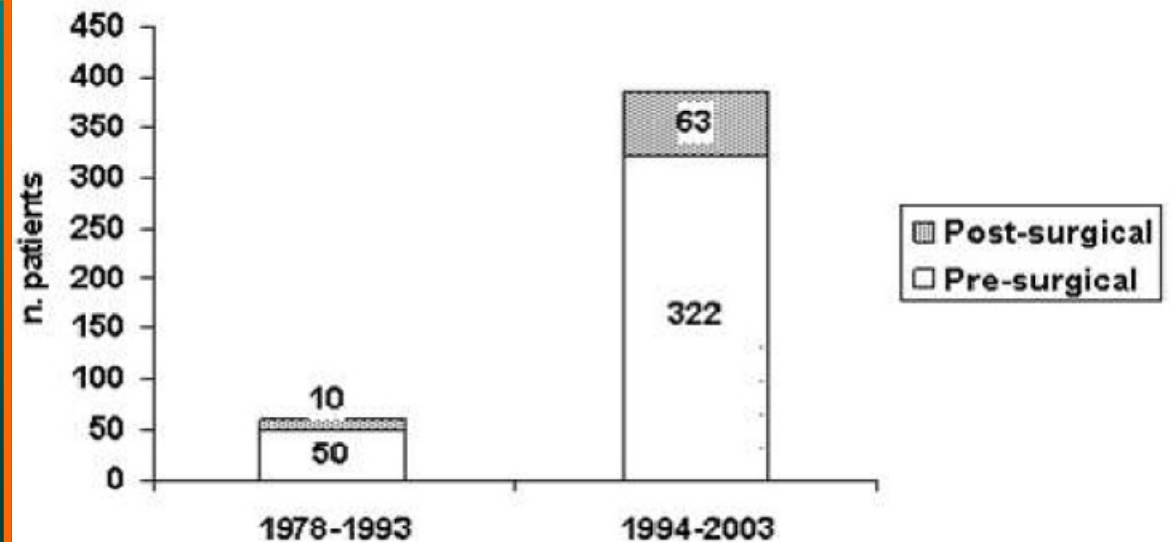
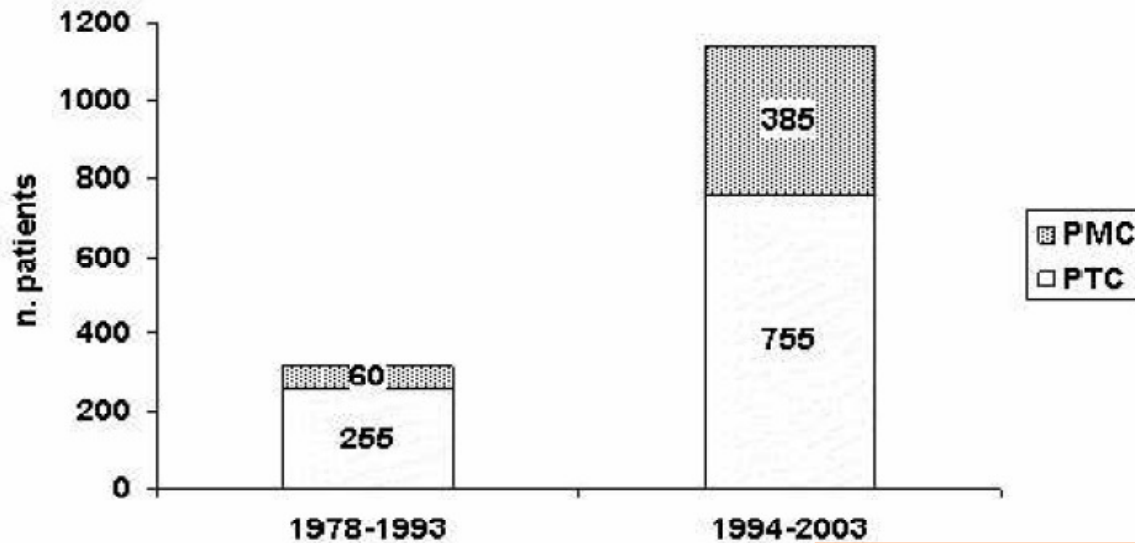
Livelli sierici di Tg. Ecografia

3. Valutazione post ablazione con ^{131}I

Livelli Tg offT4

WBS post-dose

Impatto dei Microcarcinomi sulle nuove diagnosi di carcinoma papillare tiroideo





Stadiazione e indicatori prognostici nel microcarcinoma papillare tiroideo

TABLE 6. *Statistical Analysis of the disease-free interval.*

Factor	Subgroup	Patients without recurrence (n.)	Patients with recurrence (n.)	Univariate log-rank test (P-value)
<i>Capsular invasion without extrathyroidal extension</i>	No	216	4	0.052
	Yes	36	3	
<i>Extrathyroidal extension</i>	No	252	7	0.014
	Yes	119	10	
<i>Lymph node metastasis at presentation</i>	No	273	4	0.000
	Yes	98	13	

	N0	N1a	N1b
T1	255 (57.3%)	27 (6%)	28 (6.3%)
T3	78 (17.5%)	25 (5.6%)	30 (6.8%)
T4a	-	-	2 (0.5%)



CARCINOMA DIFFERENZIATO DELLA TIROIDE: DALLA DIAGNOSI AL FOLLOW-UP

Le questioni aperte, le risposte possibili



La stadiazione pre-operatoria: cosa dicono le linee guida

Management Guidelines for Patients with Thyroid Nodules and Differentiated Thyroid Cancer

The American Thyroid Association Guidelines Taskforce*



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923

What is the role of preoperative staging with diagnostic imaging and laboratory tests?

Preoperative ultrasound identifies suspicious cervical adenopathy in 20%–31% of cases, potentially altering the surgical approach (83,84), although prospective studies are needed.

As ultrasound evaluation is uniquely operator dependent, alternative imaging procedures may be preferable in some clinical settings, though the sensitivity of computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) scan remain unknown in this setting. These alternative imaging modalities, as well as laryngoscopy and endoscopy, may also be useful in the assessment of large, rapidly growing, or invasive tumors, to assess the involvement of extrathyroidal tissues (86,87).

R21. Preoperative neck ultrasound for the contralateral lobe and cervical (central and bilateral) lymph nodes is recommended for all patients undergoing thyroidectomy for malignant cytologic findings on biopsy—Recommendation B

R22. Routine preoperative use of other imaging studies (CT, MRI, PET) is not recommended—Recommendation E

Measurement of serum thyroglobulin. There is some evidence that high preoperative concentrations of serum thyroglobulin may predict a higher sensitivity for post-operative surveillance with serum thyroglobulin (88). Evidence

R23. Routine preoperative measurement of serum thyroglobulin is not currently recommended—Recommendation E



AAACE/AME Guidelines

AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS
AND ASSOCIAZIONE MEDICI ENDOCRINOLOGI
MEDICAL GUIDELINES FOR CLINICAL PRACTICE FOR THE
DIAGNOSIS AND MANAGEMENT OF THYROID NODULES

Table 11
Key Recommendations for Management of Thyroid Nodules
That Are Positive by Fine-Needle Aspiration*

- For a thyroid nodule with positive (malignant) FNA results, surgical treatment is recommended (*grade B*)†
- Review US and cytologic results with the patient and family; discuss treatment options; answer all questions and concerns; recommend surgical excision and discuss potential complications; obtain surgical consultation, preferably with a surgeon experienced in endocrine surgical procedures (*grade D*)
- For most patients, especially those with differentiated cancers >1 cm, familial disease, and clinical or US evidence of multifocal disease, capsular invasion, or involved nodules, total or near-total thyroidectomy is indicated. Lymph nodes within the central compartment of the neck (level 6) should be removed, especially if the surgeon has specific training for and experience with thyroid surgical techniques (*grade C*)

*FNA – fine-needle aspiration; US – ultrasonography.

†See Table 1 for explanation of grades.

European consensus for the management of patients with differentiated thyroid carcinoma of the follicular epithelium



Preoperative staging

Papillary thyroid carcinoma presents with cervical lymph node metastases in nearly 50% of patients, with a frequency increasing with the size and the extrathyroidal extension of the primary tumor. For this reason, surgery must be preceded by an ultrasonographic evaluation of the lymph node chains. In case of suspicion, the metastatic nature of a lump is easily confirmed by FNAC, with the measurement of Tg in the wash-out of the needle employed for aspiration (23).

Other imaging techniques, such as computed tomography (CT), magnetic resonance (MR) and positron emission tomography (PET) scan, are not indicated as routine procedures, but may be required in selected patients with clinical evidence of local extension or of distant metastases. Laryngo-tracheoscopy and esophageal endoscopy are indicated in the presence of locally aggressive cancers with signs or symptoms of extra-thyroidal invasion.

When radiologic imaging using iodine-containing contrast media has been used, any subsequent radioiodine scintigraphy or treatment must be delayed for 2–3 months.

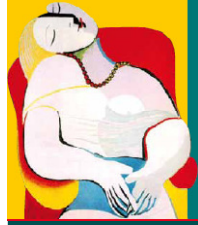


CARCINOMA DIFFERENZIATO DELLA TIROIDE: DALLA DIAGNOSI AL FOLLOW-UP

Le questioni aperte, le risposte possibili



Lo studio ecografico pre-operatorio



Endpoint dello studio ecografico pre-operatorio

Dimensioni di T

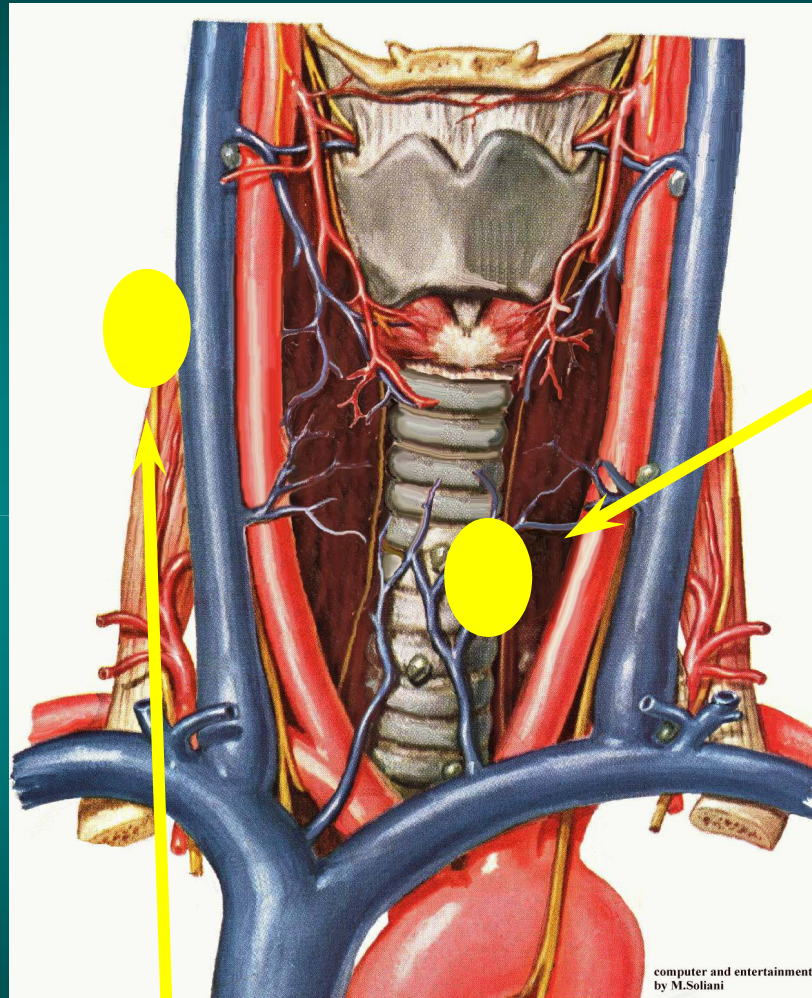
Multifocalità/Bilateralità

Coinvolgimento linfonodale

Estensione extracapsulare

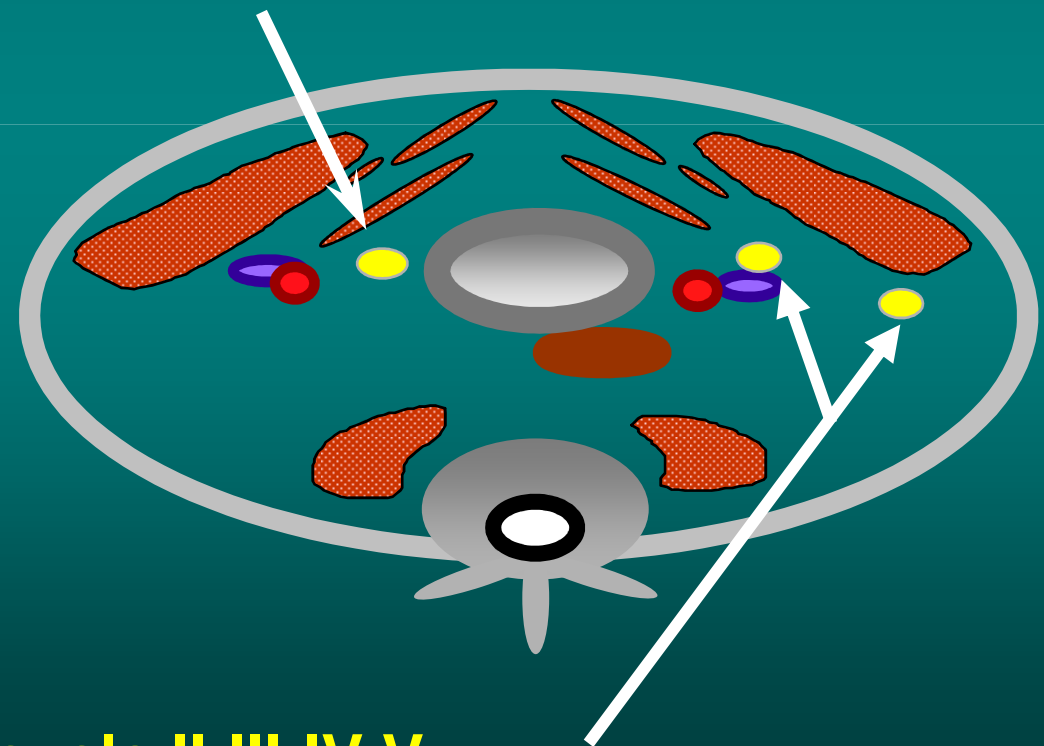
Infiltrazione organi/strutture limitrofe

Topographical anatomy: neck compartments



**CENTRAL
COMPARTMENT**

Levels VI-VII



LATERAL COMPARTMENT Levels II-III-IV-V

Lymphadenopathy: US signs of malignancy

ULTRASONOGRAPHIC FINDINGS

- **Size:** short axis diameter \geq 5-8 mm
- **Shape:** round, convex (short/long axis ratio \geq 0.5)
- **Echogenicity:**
 - usually hypoechoic
 - Iso-hyperechoic (PTC)
 - cystic pattern
- **Echogenic hilum:** absent
- **Calcifications:** fine or punctate
- **Vascular features:** peripheral and/or diffuse pattern

Neck lymph nodes: US findings predictive of malignancy

	Sensitivity %				Specificity%			
	Frasoldati et al., 2004	Lebouleux et al., 2007	Lyschik et al., 2007		Frasoldati et al., 2004	Lebouleux et al., 2007	Lyschik et al., 2007	
Short axis length	42	61	47	50	87	96	79	87
L/S axis ratio	81	46	75	67	77	64	81	74
Hyperechoic hilum	88	100	72	86	35	29	54	39
Cystic appearance Abnormal echogenicity*	38	11	58*	35	87	100	91	92
Hyperechogenic punctuations calcifications*	37	46	3*	28	91	100	100	97
Pheripheral vascularization	65	86	47	66	91	82	99	90



Pre-surgical lymph node assessment in DTC: false negative US results

Site of FN US	DTC
All pts	151
FN US	47
Central	43
Ipsilateral	5
Controlateral	3

US sensitivity in detecting central compartment lymph node metastases = 52%

Operative schedule

1. Hilum

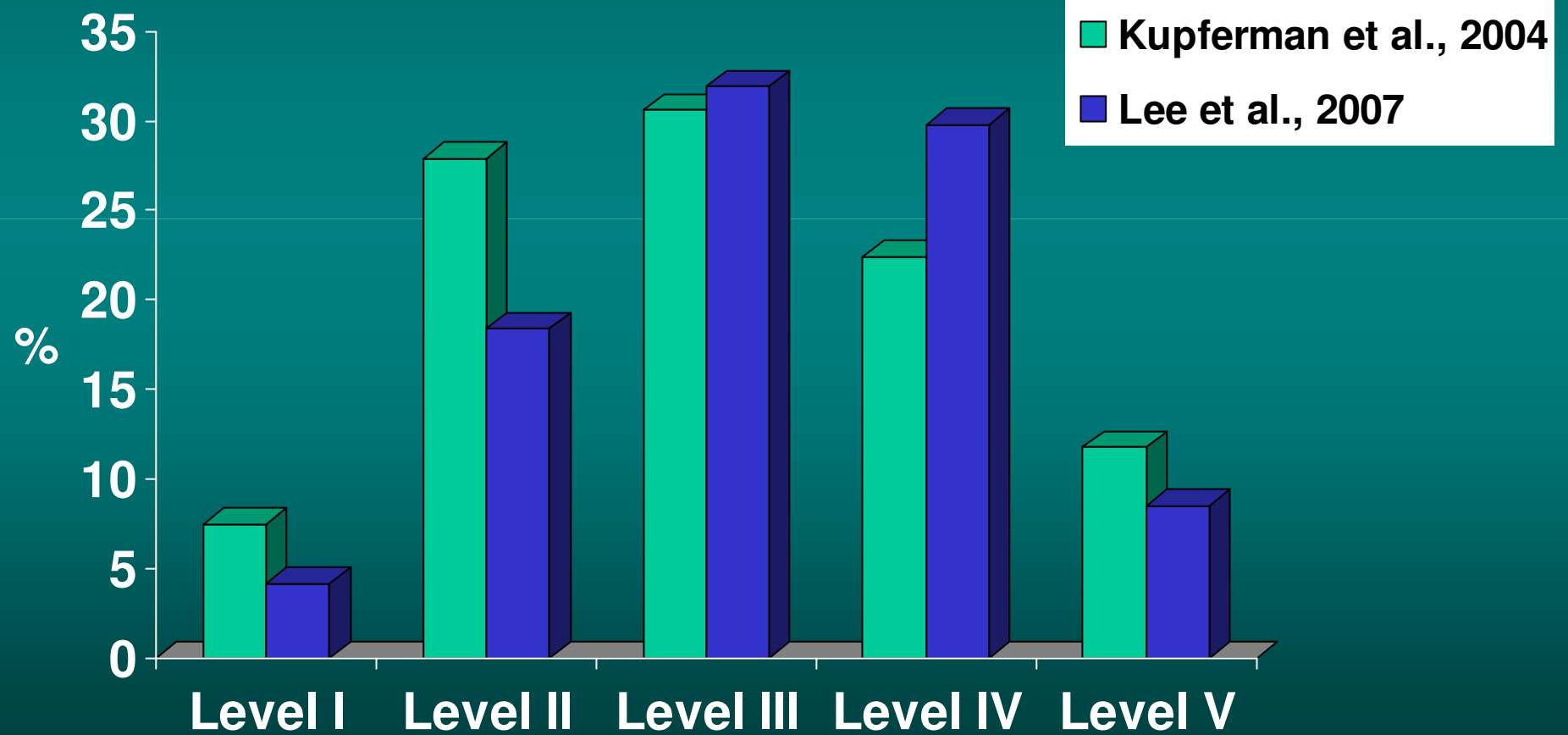
- Fatty → benign
- Absent → evaluate **vascularization**.
if peripheral → FNAB

2. **Round shape, hilum absence, hypoecogenicity**
as a single criteria do not justify FNAB

3. **Cystic appearance and hyperechoic punctuations**
in DTC patients → metastasis



Distribution of lymph node metastasis by neck level





INITIALLY OPERATED ON PTC GROUP (n = 551)



399 (71,8%) patients central compartment surgery

- 279 patients (50.6%) full central compartment dissection
- 120 patients (21.8%); node picking was performed

evidence of metastases = 44.9%

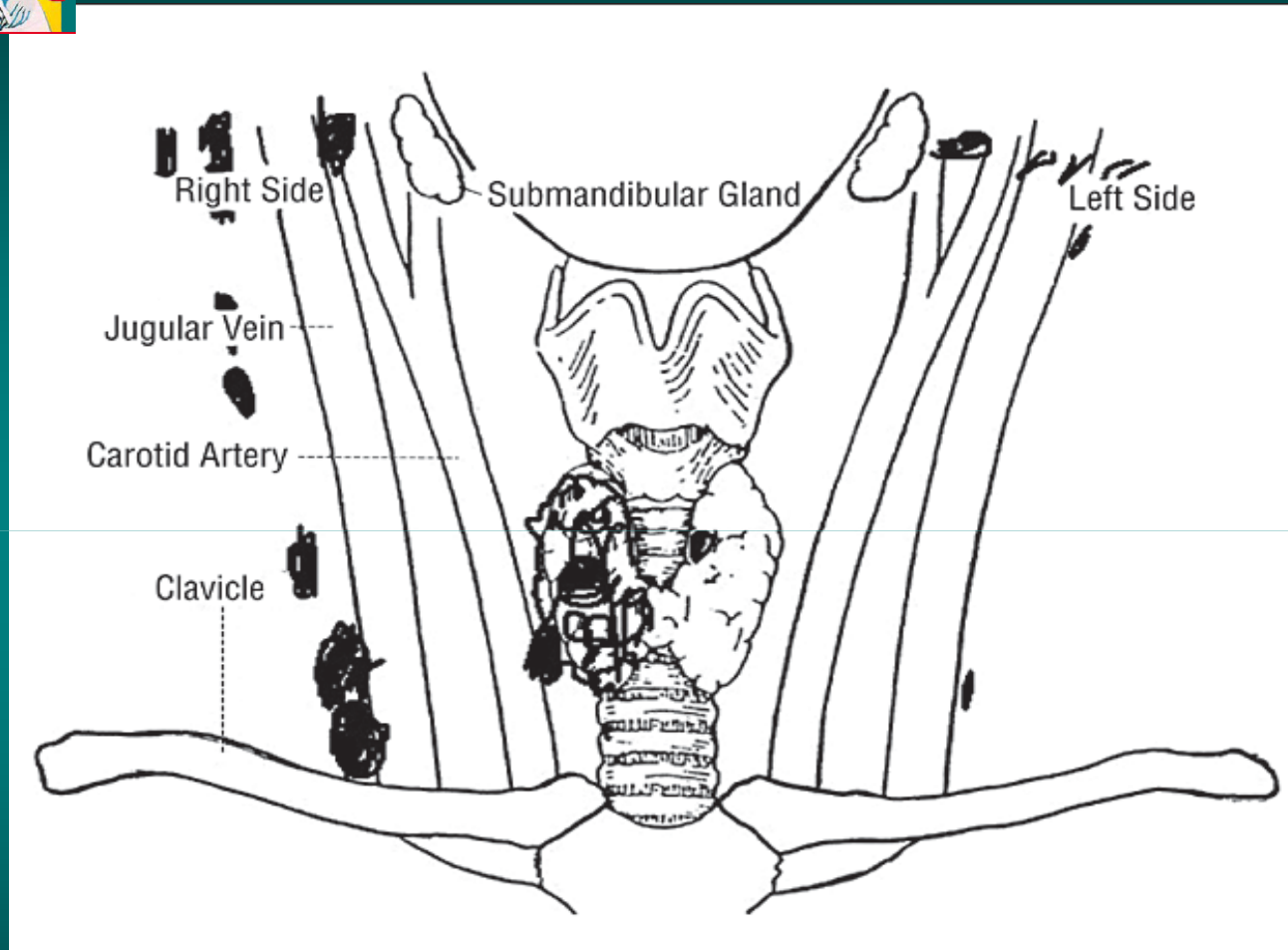
94 patients (17.1%) lateral compartment dissection

- 47 (50.0%) standard neck dissection (levels III, IV, and V)
- 20 patients (21.3%) level II dissection plus levels III through V
- 20 patients (21.3%) node picking
- 7 patients (7.4%) select dissection

evidence of metastases = 91.5%

Cervical LNMs **central compartment n = 179 (32.5%)**
lateral compartment n = 86 (15.6%).

An accompanying "map" is beneficial!_



Preoperative US identifies nonpalpable LNMs in ~ 13% of patients undergoing initial thyroidectomy

Ultrasonographic lymph node "map" demonstrating the primary papillary thyroid cancer in the right lobe and lymph node metastases in compartments II, III, and IV.

Stulak et al., Arch Surg. 2006;141:489-496