

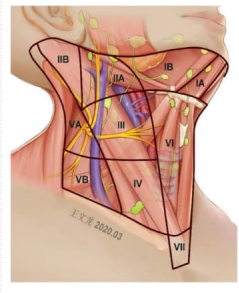
BOYUN DİSEKSİYONU-NASIL YAPIYORUM

7. ULUSAL CERRAHİ ONKOLOJİ KONGRESİ
12-15 ARALIK 2024 | SUSESI LUXURY RESORT HOTEL

DR. FATİH TUNCA

BOYUN LENF NODU GRUPLARI

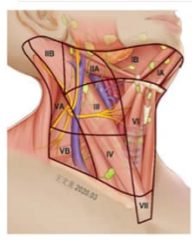
- Level I: submental ve submandibular lenf nodları
- Level II: üst juguler lenf nodları
- Level III: orta juguler lenf nodları
- Level IV: alt juguler lenf nodları
- Level V: aksesuar grup ve supraklavikuler lenf nodları
- Level VI: pretrakeal, prelaringeal, ve paratrakeal lenf nodları
- Level VII: üst mediastinal lenf nodları



BOYUN LENF NODU GRUPLARI

Tablo 1. Boyun lenfetik grupları ve sinirleri

Grup	Sinirler	İnferior	Superior	Anterior (Medial)	Posterior (Lateral)
IA	Symphysis mandibula	Hiyoid kemik çimci	Kontralateral diğastrik kasan anterior karnı	İpsilateral diğastrik kasan anterior karnı	Siklohyoid kas
IB	Mandibula alt kenarı	Diğastrik kasan posterior karnı	Diğastrik kasan anterior karnı	Submandibular becin arka sınırı	Submandibular becin arka sınırı
IIA	Kafa tabanı	Hiyoid kemiğin inferiorundan geçen horizontal plan	Siklohyoid kas	Siklohyoid kas	Siklohyoid kas
IIB	Kafa tabanı	Hiyoid kemiğin inferiorundan geçen horizontal plan	Siklohyoid kas	Siklohyoid kas	Siklohyoid kas
III	Hiyoid kemiğin inferiorundan geçen horizontal plan	Krikoid kütüğün alt sınırından geçen horizontal plan (omohiyoid alt ve üst karnı kenarına alını)	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı
IV	Krikoid kütüğün alt sınırından geçen horizontal plan (omohiyoid alt ve üst karnı kenarına alını)	Klavikula	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı
VA	Trapez kas ile SMM kasan kenarları	Krikoid kütüğün alt sınırından geçen horizontal plan	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı
VB	Krikoid kütüğün alt sınırından geçen horizontal plan	Klavikula	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı
VI	Hiyoid kemik	Suprasternal çentik	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı
VII	Suprasternal çentik	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı	Sternohiyoid kasan lateral kenarı

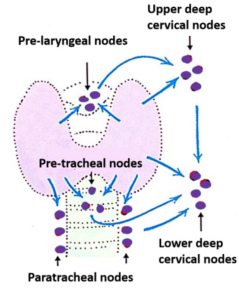


Uludag M et al. Standards and Definitions in Neck Dissections of Differentiated Thyroid Cancer. Sisli Etil Hastan Tıp Bul. 2018 Oct 1;52(3):149-163

DTK'DE METASTAZ AŞAMALARI

- Tiroid kanserinin bölgesel metastazları sıklıkla delphian (prelaringeal), pre ve paratrakeal LN'larına olur.
- Metastaz da ilk basamak LN'ları 6. bölge LN'larıdır bunları ikinci basamak olarak alt juguler zincir (4. bölge LN'ları) ve 7. bölge LN'ları takip eder. Takiben 5.,3, ve 2. bölge metastazları olabilir.
- Bununla birlikte üst pol lezyonlarında santral bölge metastazı olmadan lateral boyuna metastaz olabilir. (Üst pol lezyonlarında skip metastaz oranlarının %22 ye kadar çıkabildiği raporlanmıştır) Park et al. Skip lateral neck node metastases in papillary thyroid carcinoma. World J Surg. 2012;36:743-7. (üst,orta,alt isthmus %59, %21,9, %12,5, %6,2)
- Retrofaringeal bölge metastazları diferansiye tiroid kanserlerinde nadiren görülür.

DTK'DE METASTAZ AŞAMALARI



TEMEL İLKELER

- Profilaktik Lateral Diseksiyon: Her ne kadar mikroskopik tutulum %20'leri aşan oranlarda bildirilse de lateral bölge de profilaktik diseksiyon önerilmez
- Lateral bölge diseksiyonu metastaz varlığı kanıtlanmış (İİAB ve TG washout) hastalarda uygulanmalıdır (Terapötik diseksiyon).(ATA ve NCCN)
- Biyopsi ile verifiye >8 mm santral ve >1 cm lateral LN larına cerrahi uygulanması önerilir.



ATA ÖNERİSİ

ATA THYROID NODULE/DTC GUIDELINES

The preceding recommendations should be interpreted in light of available surgical expertise. For patients with small, noninvasive, cN0 tumors, the balance of risk and benefit may favor thyroid lobectomy and close intraoperative inspection of the central compartment, with the plan adjusted to total thyroidectomy with compartmental dissection only in the presence of involved lymph nodes.

Lymph nodes in the **lateral neck** (compartments II-V, Fig. 3), level VII (anterior mediastinum), and rarely in level I may also be involved by thyroid cancer (282,335,377,378). For patients in whom nodal disease is evident clinically on pre-operative US and nodal FNA cytology or Tc washout measurement or at the time of surgery, surgical resection by compartmental node dissection may reduce the risk of recurrence and possibly mortality (379-381).

RECOMMENDATION 71

Therapeutic compartmental central and/or **lateral neck** dissection in a previously operated compartment, sparing uninvolved vital structures, should be performed for patients with biopsy-proven persistent or recurrent disease for central neck nodes ≥ 8 mm and **lateral neck** nodes ≥ 10 mm in the smallest dimension that can be localized on anatomic imaging.

(Strong recommendation, Moderate-quality evidence)

Persistent or recurrent nodal disease may result in local invasion and is the source of considerable patient and phy-



BOYUN DİSEKSİYONUNDA KESİ SEÇİMİ

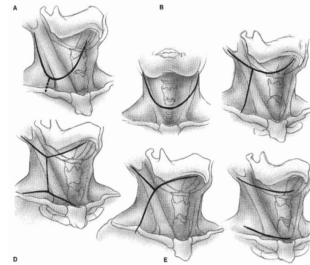


Figure 117.2 Neck dissection incisions. A: Latyshevsky and Freund. B: Freund. C: Crile. D: Martin. E: Babcock and Conley. F: MacFee.



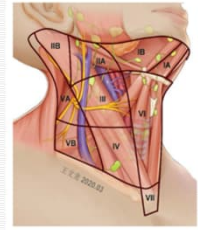
BOYUN DİSEKSİYONU TİPLERİ

- Radikal boyun diseksiyonu: level I-V, SCM, Aksesuar sinir, Juguler ven
- Modifiye Radikal Boyun diseksiyonu:
 - Tip I: Level I-V+ aksesuar sinir korunur
 - Tip II: Level I-V+ aksesuar sinir+juguler ven
 - Tip III: Level I-V+ sinir+ven+SCM
- Selektif Boyun Diseksiyonu: Bir veya daha fazla lenf grubunun çıkarıldığı tüm diseksiyonlar (çıkarılan bölge yazılmalıdır)
- Genişletilmiş radikal boyun diseksiyonu



ATA önerisi

- Lateral bölgede metastaz varlığında hastalık kontrolünün en iyi şekilde sağlanması için en az IIA, III, IV ve VB gruplarını içeren selektif diseksiyon yapılmasını önermektedir.
- Grup IIB ve VA da şüpheli LAP yoksa diseksiyon önerilmez
- Santral bölge Level VI ve VII'yi içerir



LATERAL DİSEKSİYON



SANTRAL DİSEKSİYON





ROBOTİK CERRAHİNİN TİROİD VE PARATİROİD CERRAHİSİNDEKİ YERİ: MEVCUT KANITLAR VE GELECEK PERSPEKTİFLERİ



7. ulusal CERRAHİ ONKOLOJİ KONGRESİ
12-15 ARALIK 2024 | SUSESI LUXURY RESORT HOTEL

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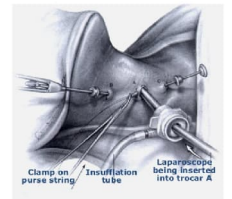
MİMİMAL İNVAZİV TİROİDEKTOMİ

- Amaç: Açık cerrahi ile aynı sonuçları alırken daha iyi kozmetik sonuç, daha az ağrı ve daha hızlı bir iyileşme elde etmek.

MİMİMAL İNVAZİV TİROİDEKTOMİNİN TARİHİ GELİŞİMİ

- Anterior ve lateral endoskopik yaklaşım (Gagner 1996)
- Minimally invaziv video yardımcı tiroidektomi (MIVATS)(MİCCOLİ 1998)
- Mini insizyon tiroidektomi

Lateral Endoskopik yaklaşım



MİVATS



Boyunda İz Bırakmayan Alternatif Yaklaşım yolları

- Trans aksiller
- Aksillo-Breast
- Retro-auricular, Facelift
- Trans-oral

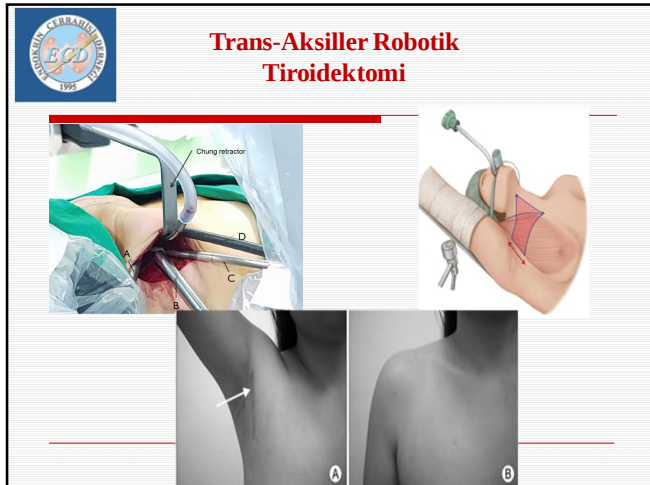
Robotik Tiroidektomi (Trans-Aksiller)

Surg Endosc (2009) 23:2399-2406
DOI 10.1007/s00364-009-0366-x

ORIGINAL ARTICLES

Robot-assisted endoscopic surgery for thyroid cancer: experience with the first 100 patients

Sang-Wook Kang · Jong Ju Jeong · Ji-Sup Yun · Tae-Yon Sung · Seung Chul Lee · Yong Sang Lee · Kee-Hyun Nam · Hang Seok Chang · Woong Youn Chung · Cheong Soo Park





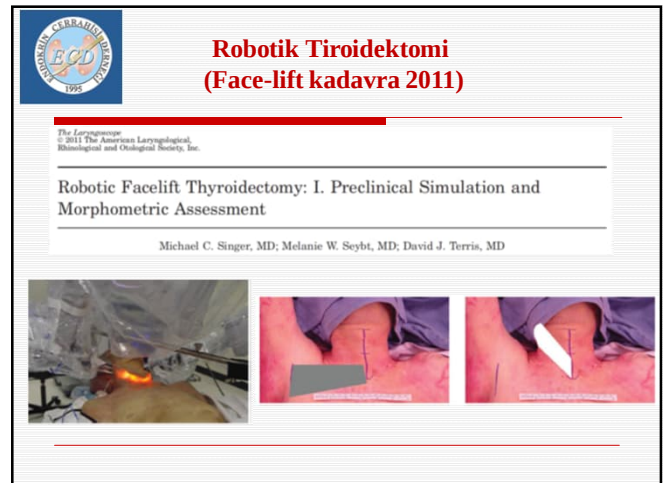
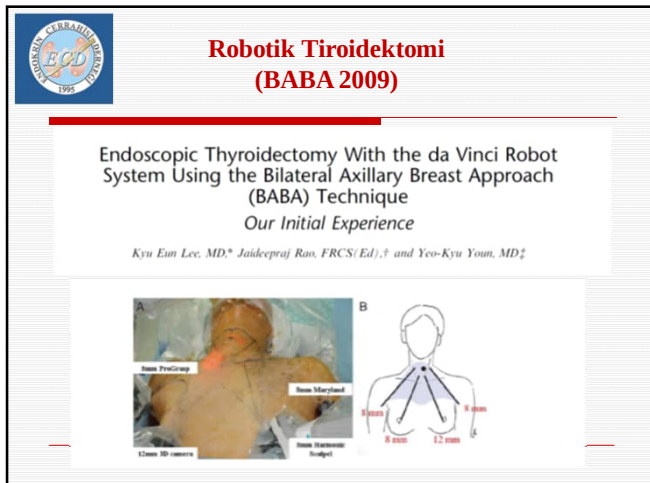
Robotik Tiroidektomi (Trans-Aksiller)

Grand Surgery, Vol 6, No 3 June 2017

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Table 1 Summary of selected studies of transaxillary robotic thyroidectomy

Author [year] (ref.)	Study design [cases]	Pathologic [cases]	Extent of surgery	Operative time (mean total ± SD)	Complication profile [cases]	Hospital stay (median)
Kucukdemir [2011] (16)	Case series	PTC [2], FN/LT, benign [27]	HT [20], TT [1]	Range: 152–328	Transient nodal nerve neuroma [1], transient vocal cord paresis [1]	1
Chakrabarti [2012] (17)	Case series	PTC [26]	TT [26]	178.51±24.16	Transient hoarseness [2]	3
Foley [2013] (18)	Case series	PTC [4], HCTC [1], benign [8]	HT [5], TT [3]	232±65.7	Transient hypocalcemia [1], chest parasthesia [2], shoulder discomfort [1]	1
Kandil [2012] (19)	Case series	N/A	HT [86], TT: 118.1±51.3 TT: near total [22], completion [8]	HT: 108.1±60.5	Conversion to open [5], tracheal injury [1], transient hoarseness [7], transient hypocalcemia [15], seroma [5], infection [1], transient nodal nerve neuroma [1]	1
Landy [2012] (20)	Case series	PTC [6], benign [17], control [4]	HT [5]	121	Hematoma [5], infection [2], seroma [2], temporary hoarseness [5], tracheal paresis [1]	1
Terris [2013] (21)	Case series	PTC [1], benign [4]	HT [5]	186±36.1	Chest wall numbness [5]	1
Alsaifi [2013] (2)	Case series	PTC [4], benign [48]	Lobectomy [41], total [8]	159±36.2	Conversion to open [1], Transient tracheal injury [1], transient vocal cord paresis [1], transient hypocalcemia [2], chest parasthesia [1], seroma [1], wound infection [1]	4
Gaonkar [2013] (22)	Case series	Benign [44]	HT [27], TT [5], subtotal [12]	129.8±39.5	Transient hypocalcemia [1], permanent RLN injury [1]	3
Alavi [2013] (23)	Case series	PTC [16], FTC [1], benign [2]	Total [18]	183±11	Asymptomatic hypocalcemia at 2 weeks post op [2], hematoma [1]	NA
Anna [2014] (24)	Case series	PTC [5], benign [13]	Lobectomy [16]	228	Transient RLN paresis [1], temporary shoulder discomfort [1]	NA
Bai [2014] (25)	Case series	PTC [2], HCTC [1], MTC [3]	Less than total [1,9/3], total [1,9/3]	124.76±32.50	Transient hypocalcemia [4/6], permanent hypocalcemia [1/2], transient RLN injury [2], permanent RLN injury [0], seroma [2], hematoma [1], chyle leak [1], trachea injury [0], Rotor's syndrome [1], major vessel injury [2], brachiocephalic vein thrombosis [0], skin flap necrosis [0]	3



Robotik Tiroidektomi (Face-lift)

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Chang et al. Overview of robotic thyroidectomy

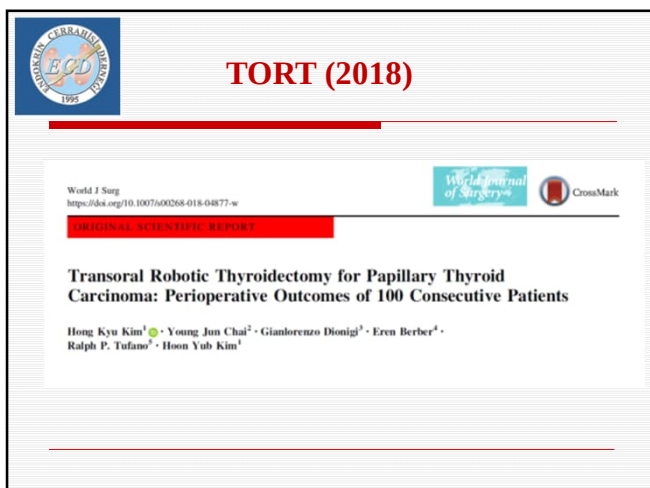
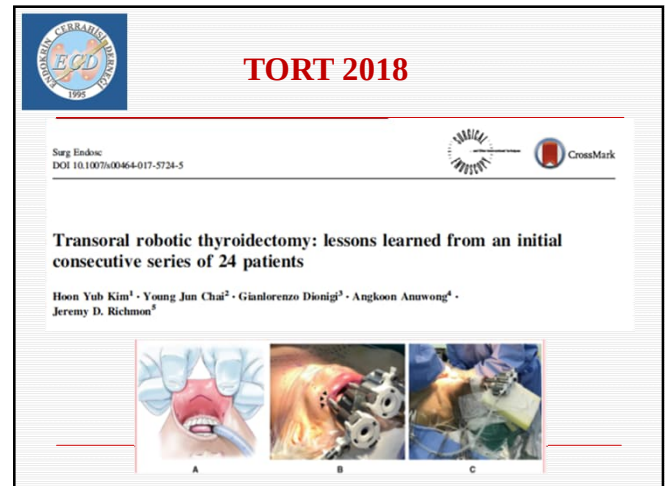
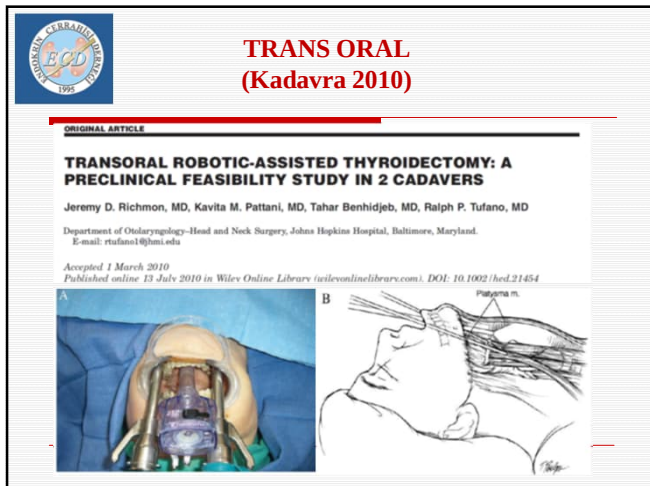
Table 2 Summary of selected studies of retroauricular (facelift) robotic thyroidectomy

Author [year] (ref.)	Study design [cases]	Pathology [cases]	Extent of surgery	Operative time (mean total ± SD)	Complication profile [cases]	Hospital stay (median)
Terris [2011] (29)	Case series	PTC [2], FTC [1], benign [15]	HT [13], TT [1], completion [3]	Range: 97–193	Seromas [2], transient VC dysfunction [1], temporary periauricular hypesthesia [17]	0
Kandil [2015] (26)	Case series	PTC [1], FTC [2], benign [9]	HT [12]	145.4±10.08	Transient hypocalcemia [3], transient hoarseness [1], seroma [2], hypoesthesia [3]	1
Byeon [2016] (27)	Case series	PTC [75], FTC [2], benign [10]	TT + MRND [16], total [15], HT [56]	HT: 88.1±51.2 TT: 173.8±75.2	Transient VC palsy [5], permanent VC palsy [3], Temporary hypoparathyroidism [12], temporary MM nerve injury [5], sericoma numbness [6], seroma [2], hematoma [2], chyle leak [1], skin flap ischemia [2]	TT or less: 6; TT + MRND: 10

PTC, papillary thyroid cancer; FTC, follicular thyroid cancer; HT, hemithyroidectomy; TT, total thyroidectomy; MRND, modified radical neck dissection.

Chang et al., Overview of robotic thyroidectomy Gland Surg. 2017 Jun;6(3):218-228

- TRANS ORAL
- 2008 Witzel K. sublingual kadavra domuz
 - 2010 Richmon JD. kadavra, Robotik(3 port)
 - 2011: Wilhelm T. sublingual, insan
 - 2014: Wang C. TOETVA insan
 - 2016: Anuwong A. TOETVA (60 hasta)
 - 2018 Kim HY. TORT





TRANSORAL CERRAHİNİN AVANTAJLARI

- NOTES (izsiz),
- Minimal doku diseksiyonu ve travma (çalışma alanı diğer uzaktan erişimli cerrahlere göre daha küçük), insizyondan tiroide olan mesafe kısa
- Orta hat yaklaşımı olduğu için total tiroidektomi ve santral lenf nodu diseksiyonu yapılabilir. (level VI-VII)
- Tüm açık cerrahi presipleri korunabilir
Sinir diseksiyonu ve monitörizasyonu
Paratiroidlerin görülüp korunması
Total yada totale yakın tiroidektomi



KILAVUZ



TORT Cerrahi endikasyonlar:

- (I) Selim tiroid hastalığı. (MNG ≤ 4 cm).
- (II) Hipertiroidizm (Grade I to II guatrı olan ve volümün ≤ 50 mL olduğu olgular)
- (III) DTK maksimum ≤ 2 cm (preop görüntülerde lokal ve çevre organ invazyonu ve lateral boyun metastazı olmayan hastalar)
- (IV) PHPT: Normal anatomik pozisyonunda suprasternal fossa ve sternoclaviküler bileşke üzerinde olan olgular.



KILAVUZ

TORT Cerrahi kontrendikasyonlar:

- Geçirilmiş boyun cerrahisi, ablasyon veya radyoterapi.
- Preoperatif değerlendirmede Trakea, özofagus veya RLN invazyonu
- Medüller veya indifferansiye tiroid kanseri.
- Grade III guatrı olan hipertiroid hastalar.
- Ağır inflamasyonun eşlik ettiği tiroid tümörleri
- Preop değerlendirmede lateral boyun metastazı.
- Aşırı uzun ve öne çıkan mandibula veya mandibular estetik cerrahi geçmişi
- Oral kavitede enfeksiyon
- Genel anesteziyi tolere edemeyecek hastalar.
- Cervikal omurga deformitesi olan ve boynu ekstansiyona getilemeyen hastalar.



TORT

Avantajlar:

- 3 boyutlu yüksek rezolüsyonlu büyütülmüş görüntü
- Robotik uçların hareket kabiliyeti ve her türlü enerji cihazı kullanılabilmesi

Dezavantajlar:

- Taktik uyarı yok
- Ameliyat süresi uzun
- Maliyet yüksek



TORT



TORT

Table III
Operative outcomes (N = 1,000)

Characteristics	Mean $\pm$ SD
Total operative time, min	107.5 $\pm$ 19.8
Isthmusectomy	173.8 $\pm$ 36.2
Total thyroidectomy	236.8 $\pm$ 50.5
Blood loss, mL	23.9 $\pm$ 3.8
VAS pain score	
POD 0	4.6 $\pm$ 1.3
POD 1	3.1 $\pm$ 0.8
POD 2	2.5 $\pm$ 0.8
Postoperative hospital stay, d	2.6 $\pm$ 0.9

POD, postoperative day; SD, standard deviation; VAS, visual analog scale.

Table IV
Postoperative complications (N = 1,000)

Characteristics	n (%)
Oral wound infection	12 (1.2)
Skin flap burn	4 (0.4)
Bleeding	1 (0.1)
Chyle leakage	1 (0.1)
Mental nerve injury	
Transient	6 (0.6)
Permanent	3 (0.3)
RLN injury	
Transient	4 (0.4)
Permanent	1 (0.1)
Hypoparathyroidism*	
Transient	4 (4.1)
Permanent	0 (0)

RLN, recurrent laryngeal nerve.
In 98 patients who underwent total thyroidectomy.

ROBOTİK TİROİDEKTOMİ KARŞILAŞTIRMA RT VS OT

Table 1. Comparison analyses of outcomes between RT and conventional OT.

Author(s) Year	Sample Size (n)	Reliable Answers (n)	Test-retest Reliability (Cronbach's alpha)	Operative Reliability (Cronbach's alpha)	Internal Consistency (Cronbach's alpha)	Construct Validity (Cronbach's alpha)	Internal Validity (Cronbach's alpha)	External Validity (Cronbach's alpha)	Reliability (Cronbach's alpha)	Validity (Cronbach's alpha)	Reliability (Cronbach's alpha)	Validity (Cronbach's alpha)	Reliability (Cronbach's alpha)	Validity (Cronbach's alpha)	Reliability (Cronbach's alpha)	Validity (Cronbach's alpha)	Reliability (Cronbach's alpha)	Validity (Cronbach's alpha)
Alm et al. (2012)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2013)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2014)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2015)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2016)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2017)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2018)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2019)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2020)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2021)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2022)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2023)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2024)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2025)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2026)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2027)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2028)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2029)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2030)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2031)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2032)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2033)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2034)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2035)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2036)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2037)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2038)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2039)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2040)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2041)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2042)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2043)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2044)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2045)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2046)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2047)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2048)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2049)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2050)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2051)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2052)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2053)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2054)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2055)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2056)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2057)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2058)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2059)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2060)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2061)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2062)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2063)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2064)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2065)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2066)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2067)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2068)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2069)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2070)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2071)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2072)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2073)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2074)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2075)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2076)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2077)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
Alm et al. (2078)	100	80	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15

ROBOTİK TİROİDEKTOMİ KARŞILAŞTIRMA RT VS OT

Table 1. Con

[illegible]

†: percentage of moderate pain on POD#1; IA, trans iliac; IABA, bilateral axillo-breast approach; RT, robotic thyroidectomy; OT, open thyroidectomy; NR, not reported; NS, not significant; LN, lymph node; RLN, recurrent laryngeal nerve; PTH, parathyroid hormone; Tg, thyroglobulin.

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ROBOTİK TİROİDEKTOMİ KARŞILAŞTIRMA RT VS OT

- Kozmetik: TO, TA, BABA :Hasta memnuniyeti her 3 teknikte de açık cerrahiden anlamlı olarak daha iyi ($p<0.0001$, $p<0.0001$, $p<0.001$)
 - Ağrı: TA'de ağrı açık cerrahie göre anlamlı oranda düşük ($p=0.001$ ve $p<0.0001$) BABA ve TORT'da ağrı açısından açık cerrahi ile anlamlı fark yok ($p=0.71$,
 - Komplikasyonlar: hipoparatiroidi, vokal kord paralizi ve kanama (robotik ve açık yöntemler arasında fark yok)
 - Ameliyat sonrası iyileşme: Hastanede kalış anlamında çalışmaların çoğunda açık ve robotik cerrahi arasında fark yok.
- Boyun bölgesinde hiperestezi ve parestezi robotik grupta anlamlı olarak daha az.
- Ameliyat sonrası yutkunma problemleri açık cerrahi grubunda anlamlı olarak yüksek
- Onkolojik sonuçlar: Açık ve robotik grup arasında **çıkartılan lenf nodu** ve PO Tg seviyeleri arasında fark yok. Nüks ve hastalıklı sağkalım açısından fark yok ($p=0.355$, $p0.938$)

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ÖĞRENİM EĞRİSİ ve LİMİTASYONLAR

- TART: 20-50 vaka
- BABA: 30-50 vaka
- TORT: 25-55 vaka
- Limitasyonlar:
 - 1) Açık cerrahiye oranla uzun ameliyat süreleri:
 - 2) Yüksek maliyet: Ülkeye göre 3000-7000\$ daha pahalı
 - 3) Yeni komplikasyonlar : TA: brakial pleksus yaralanması, tümör ekimi, flap delinmesi. TORT: oral komissür yırtılması, mental sinir hasarı, CO2 embolisi, cilt delinmesi ve yanığı,

GELECEK YÖNELİMLERİ VE İNOVASYON

- Teknolojik gelişmeler: Gelecek robot sistemlerini daha keskin, fleksibl, kolay kullanılabilen, daha küçük ve hünlerli robot kolları, haptic feedback
- Tele cerrahi ve uzaktan erişim
- Single-port cerrahi
- ICG ve Near Infrared oto floresans (NIRAF)
- Potansiyel yapay zeka uygulaması

GELECEK YÖNELİMLERİ VE İNOVASYON



Article

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