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# Does the Extent of Poorly Differentiated Areas in Thyroid carcinoma affect clinical outcomes? A Retrospective study

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## Introduction

- PDTC accounts for 2-15% of thyroid carcinomas
- Criteria for histologic diagnosis – evolving over time. Currently based on The Turin criteria (2006)
- Does not include percentage of poorly differentiated area
- Limited literature on patient outcomes based on the percentage of poorly differentiated areas (PDA) in histopathology
- **Therefore, we conducted this study to determine if the percentage of PDA affects patient outcomes**

## Material and methods

- Retrospective, single-institution observational study (January 2006 to December 2021)
- Histopathology reported Poorly Differentiated Thyroid carcinoma or reported as Areas of Poorly Differentiated Thyroid carcinoma.
- The cohort was divided into groups based on the percentage of poorly differentiated areas; **PDA: ≤10%, PDTC: 11-100%**. Groups were then compared for outcomes
- Software SPSS statistic Version:26 has been used for statistics

## Results

Frequency of PDTC – 94/4165 (2.3%)

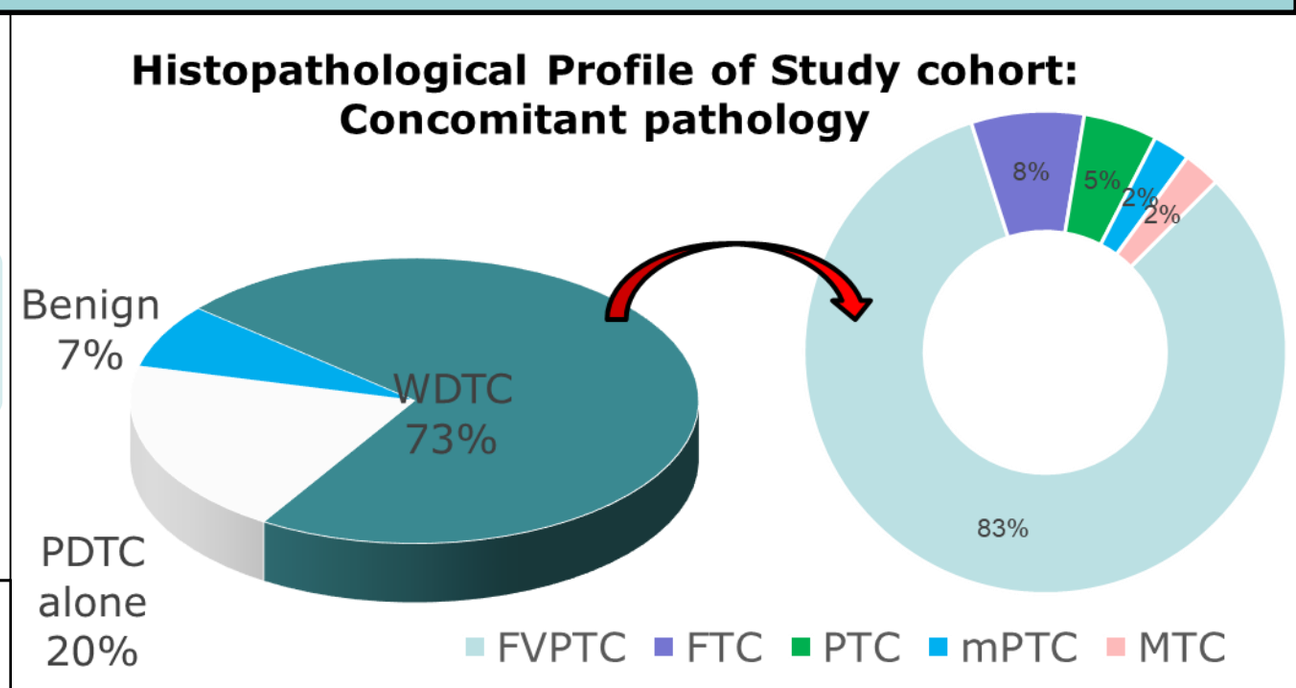
Number of Thyroid carcinomas operated n=4165

PDTC/area of PDTC n= 94

Other types of Thyroid carcinoma n= 4071

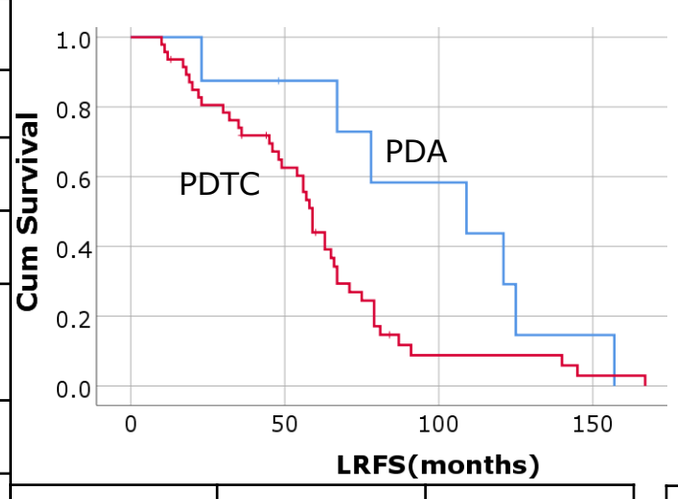
Follow up data unavailable - 39

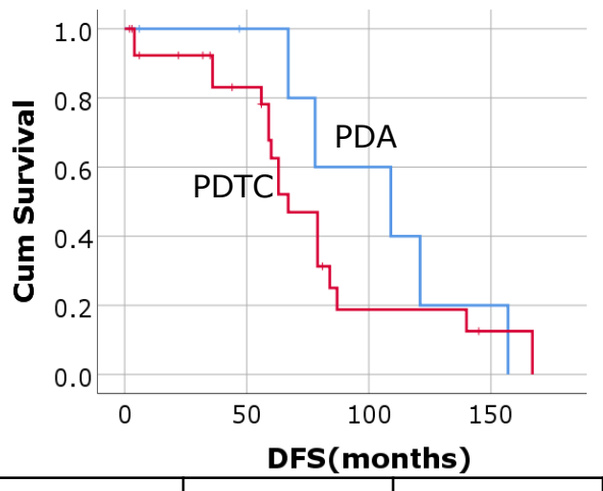
Remaining patients included in study - 55




| Comparison of PDA and PDTC | PDA(n=8) | PDTC(n=47) | |
|---|---|---|---|
| **Demographic profile** | n(%) | n(%) | P value |
| Age >55 | 3(37.5) | 26(55.3) | 0.70 |
| M:F | 1:7 | 1:3 | 0.36 |
| **Type of surgery** | | | |
| TT | 6(75) | 31(66) | 0.78 |
| TT+LND | 2(25) | 14(29.8) | |
| Excision of recurrent lesion | 0 | 16(34) | |
| Sternotomy | **0** | **2(4.3)** | |
| Laryngectomy/tracheal resection | **0** | **4(8.5)** | 0.39 |
| Metastasectomy | **0** | **7(14.9)** | 0.57 |
| Stage 4 disease | **1(12.5)** | **13(27)** | 0.40 |
| Tumor size>4cm | **4(50)** | **37(79)** | 0.22 |
| Intraoperative infiltration | 0 | 17 | **0.04** |
| ETE | 0 | 16(34) | **0.05** |
| LVI | 1(12.5) | 39(83) | **<0.01** |
| **Adjuvant treatment** | | | |
| EBRT to Neck | 0 | 9(19.1) | 0.32 |
| EBRT to metastatic site | 1(12.5) | 9(19.1) | 0.18 |
| **Outcomes** | | | |
| Local recurrence | **1(12.5)** | 5(10.6) | 0.80 |
| Systemic metastasis | **3(37.5)** | 25(53.2) | 0.40 |
| **Survival variables** | | | |
| Deceased | 1(12.6) | 4(6.4) | 0.46 |
| 5-yr Overall survival | 100% | 92.4% | **0.37** |
| 10-yr overall survival | 80.5% | 80.8% | |

### Comparison of survival variables




| LRFS | PDA | PDTC |
|---|---|---|
| 5-Year | 73% | 44% |
| 10-Year | 29.2% | 8.8% |

| DFS | PDA | PDTC |
|---|---|---|
| 5-Year | 80% | 62.6% |
| 10-Year | 60.6% | 12.5% |

## Discussion

| This Study | Literature Review |
|---|---|
| ➢ Frequency: 2.3% | Incidence : 1to15%; ***Jr.EMS et.al*** |
| ➢ >10% Group showed more aggressive features such as ETE, LVI, and intraoperative infiltration: statistically significant<br>➢ Number of tumors greater than 4cm, stage 4 disease, Complex surgery and decrease RFS and DFS seen in >10% group<br>➢ Similar OS | Similar to ***Tanaka et.al, Panchangam et.al, dettmer et.al***<br>***Ibrahimpasic et.al, Volante et.al*** |
| ➢ ≤10% group: 37.5% metastasis, 12.5% LR, 12.5% succumbed to disease<br>➢ Hence presence of minor component affect prognosis | Similar to ***Raouef bichoo et.al*** |

## Conclusion

- PDTC accounted for 2.3% of thyroid carcinoma in this cohort.
- **Even presence of minor PDA, can affect prognosis.** Hence patients with any evidence of PDA in histopathology should be treated aggressively.
- **With percentage increase, significantly more aggressive features-LVI, ETE and Local infiltrations were seen; However, this did not affect rates of local recurrence, systemic metastasis and survival.**
- Survival rates in our cohort were better than reported in literature; however, this is limited by lack of follow-up data.