IDENTIFICATION OF CYTOTOLOGICAL FEATURES DISTINGUISHING HÜRTHLE CELL TYPE FOLLICULAR NEOPLASM FROM NON-HÜRTHLE CELL TYPE FOLLICULAR NEOPLASM IN THYROID LIQUID-BASED CYTOLYSIS

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No potential COI to disclose.

INTRODUCTION

- In the Bethesda system for reporting thyroid cytopathology1), Hürthle cell type follicular neoplasms (HCT-FNs) are distinguished from non-Hürthle cell type follicular neoplasm (NHCT-FNs).
- Cytological features of HCT-FNs in conventional preparations (C-Ps) are well known, but those in liquid-based cytology preparations (LBC-Ps) have been described in only one report (Thinprep® method).

OBJECTIVE

- To identify cytological features distinguishing FN-HCT and NHCT-FN in thyroid LBC-Ps.
- To clarify the cytomorphological difference of HCT-FNs in LBC (CytorichTM) and C-Ps.

RESULTS

<table>
<thead>
<tr>
<th>HCT-FNs (21)</th>
<th>NHCT-FNs (22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naked capillaries</td>
<td>28.6% (6)</td>
</tr>
<tr>
<td>C-Ps</td>
<td>14.3% (3)</td>
</tr>
<tr>
<td>C-Ps</td>
<td>42.9% (9)</td>
</tr>
<tr>
<td>Watered colloid</td>
<td>14.3% (3)</td>
</tr>
<tr>
<td>LBC-Ps</td>
<td>52.4% (11)</td>
</tr>
<tr>
<td>Naked capillaries</td>
<td>52.4% (11)</td>
</tr>
</tbody>
</table>

Appearance

- Follicular
  - LBC-Ps: 95.2% (20)
  - C-Ps: 61.9% (13)
  - LBC-Ps: 61.9% (13)
  - C-Ps: 61.9% (13)
  - LBC-Ps: 66.7% (14)
  - C-Ps: 85.7% (18)
  - LBC-Ps: 76.2% (16)
  - C-Ps: 66.7% (14)
  - LBC-Ps: 71.4% (15)
  - C-Ps: 4.5% (1)

Cytoplasm

- Well-defined cell border
  - LBC-Ps: 71.4% (15)
  - C-Ps: 19.0% (4)
  - LBC-Ps: 47.6% (10)
  - C-Ps: 4.8% (1)
  - LBC-Ps: 95.2% (20)
  - C-Ps: 95.2% (20)
  - LBC-Ps: 66.7% (14)
  - C-Ps: 47.6% (10)

Nuclei

- Naked
  - LBC-Ps: 33.3% (7)
  - C-Ps: 42.9% (9)
  - LBC-Ps: 71.4% (15)
  - C-Ps: 47.6% (10)
  - LBC-Ps: 52.4% (11)
  - C-Ps: 61.9% (13)
  - LBC-Ps: 42.9% (9)
  - C-Ps: 95.2% (20)
  - LBC-Ps: 47.6% (10)

Necroli

- Eosinophilic
  - LBC-Ps: 85.7% (18)
  - C-Ps: 19.0% (4)
  - LBC-Ps: 71.4% (15)
  - C-Ps: 52.4% (11)
  - LBC-Ps: 42.9% (9)
  - C-Ps: 95.2% (20)

DISCUSSION

- Classical features of HCT-FNs described in C-Ps, which include syncytial and isolated patterns, thick and granular cytoplasm, intracytoplasmic lumina, anisonucleosis, binucleation, nuclear grooves, and eosinophilic and prominent nucleiol were also observed in LBC-Ps.
- Intercellular windows, well-defined cell border, distinct luminal border, and rugged nuclei were significantly seen in LBC-Ps of HCT-FNs. No rugged nuclei were observed in HCT-FNs on C-Ps, as well as NHCT-FNs. Therefore, the finding should be a novel clue of HCT-FNs in LBC-Ps.
- Foamy histiocytes and watery colloid were seen in 28.6% and 42.9% of HCT-FNs on LBC-Ps, respectively. We should be aware that HCT-FNs can reveal the background favoring benign nodular goiter2).
- The incidence of follicular pattern in HCT-FNs on C-Ps was not high (61.9%). We believe that some of follicular clusters were recognized as syncytial pattern.
- Naked capillaries, intercellular windows, and perinucleolar halo were seen in both HCT- and NHCT-FNs on LBC-Ps. The latter two are also observed in papillary carcinoma on LBC-Ps3). Therefore, they are considered as the features characteristic of LBC-Ps.

CONCLUSIONS

- Well-defined cell border, Distinct luminal border, and rugged nuclei might be indicators distinguishing HCT-FNs from NHCT-FNs in LBC-Ps.
- Some of follicular clusters in HCT-FNs on LBC-Ps are observed as syncytial pattern on C-Ps.
- We should be aware that HCT-FNs can reveal foamy histiocytes and watery colloid that are frequently seen in benign nodular goiter.

REFERENCES