Non-Gynaecological Cytology Oral Session 10th October 2-3 pm

Thyroid cytology-histology correlation before and after introduction of the RCPath terminology for thyroid cytology reporting

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Summary Abstract:

Background: The Royal College of Pathologists (RCPath) Thy1-5 thyroid cytology document, published in November 2009, invited local audits of its use. This audit assesses percentages of reports in each Thy category and correlates these with subsequent histology (as per RCPath audit template), also compares these with previous audits and the USA Bethesda System (TBS), and compares periods before and after changing from BTA/RCP to RCPath terminology.

Methods: Thyroid cytology and subsequent histology reports at RVI for 5 years (1/1/08-31/12/12) were reviewed. 08-10 was regarded as pre-RCPath and 11-12 as post-RCPath. For 08-10, RCPath equivalent categories were allocated from report wording.

Results: There were 1087 specimens in 08-10 and 718 in 11-12 (excluding referrals/reviews). Thy percentages for 08-10/11-12 respectively were: Thy1 16.1%/11.3%; Thy1c 10.6%/10.3%; Thy2-2c 52.4%/50.6%; Thy3a 9.6%/10.0%; Thy3f 7.1%/11.1%; Thy4 2.5%/1.9%; Thy5 1.7%/4.7%.

451 patients had histology: 256 non-neoplastic lesions; 195 neoplasms (73 benign, 122 malignant). PPVs for neoplasia (histology cases only) for 08-10/11-12 were: Thy3a 20.3%/58.3%; Thy3f 60.0%/66.2%; Thy4 58.3%/84.6%; Thy5 100%/100%. PPVs for malignancy (histology cases only) were: Thy3a 10.2%/33.3%; Thy3f 35.4%/31.0%; Thy4 50.0%/69.2%; Thy5 100%/100%.

Risk of malignancy (ROM) (including non-histology cases) was: Thy1-1c 5.2%/3.9%; Thy2-2c 1.4%/1.4%; Thy3a 5.8%/16.7%; Thy3f 29.9%/27.5%.

Conclusions: Inadequates (Thy1) have decreased 08-10 to 11-12 but the cystic proportion (Thy1c) is stable. The ROMs for Thy1/1c/2/2c are low. The ROMs for Thy2/2c/3a/3f are similar to those suggested by TBS. Usage of Thy3a exceeds the TBS suggestion of 7% for AUS/FLUS. Interestingly, the Thy3a PPV for both neoplasia and malignancy has increased 08-10 to 11-12, with a small reduction in use of Thy4, possibly suggesting over-use of Thy3a instead of Thy4. Thy3f usage has increased but PPVs of neoplasia and malignancy are similar to previous RVI audits. Thy5 has a 100% PPV for malignancy, meeting the RCPath standard.

References:
2. The Royal College of Pathologists. Cellular Pathology audit template: Audit of reporting of thyroid cytology specimens and their correlation with thyroid histology

British Association for Cytopathology Scientific Meeting 9-11th October 2014 - Abstracts
Does peritoneal cytology correlate with histology in the staging of endometrial cancer?

Dr PA Cross. Department of Pathology, Queen Elizabeth Hospital, Gateshead, Tyne and Wear, NE9 6SX.

Summary Abstract:

**Background:** FIGO staging of endometrial cancer requires the reporting of peritoneal cytology, invariably taken at the time of cancer surgery. Prior to 2009 this was part of the staging (FIGO 1998), but since 2009 revision is now still required, but is not a formal part of the staging itself. The purpose of this study was to see if the taking of such cytology is being performed, and how did it relate to the histological findings/staging.

**Methods:** The Queen Elizabeth Hospital is a major Gynaecological cancer centre, and the Pathology department reports all the pathology derived from these cases. A SNOMED search was made for all resected endometrial cancer cases for 2010-2013 inclusive, along with the relevant cytology. The histology and cytology reports were reviewed, and results compared.

**Results:** 262 endometrial cancer cases were identified as having been operated upon and reported in this time. 17 ((6.5%) had not had cytology taken, and were excluded. The remaining 245 cases were reviewed, and comprised a high proportion of grade 3/high grade histological types in keeping with referral patterns. Of the low grade cases (Grade 1 and 2) 2/103 stage 1 and 2, whilst 9/88 high grade cases had positive washings. Of stages 3a or higher this was 5/11 and 21/43 respectively. Overall, of the cases with positive cytology, 27/ 37 had vascular invasion also.

**Discussion:** The clinical significance of positive peritoneal cytology in cases of early stage endometrial cancer is debated, and the literature is unclear as to its significance in such cases. Our data does suggest a correlation between cytology and histology/stage with higher stage disease and also vascular involvement. On going work is planned to assess the significance in early stage disease.

References

WHO Classification of Tumours of Female Reproductive Organs, WHO IARC 4th edition, 2014


British Association for Cytopathology Scientific Meeting 9-11th October 2014 - Abstracts
Diagnostic accuracy of thyroid cytology reports: An audit of RCPPath guidelines

Dr. DKD Kuruppu, Dr G Wathuge

Introduction
Historically, considerable variation existed in the quality of thyroid cytology reports. In response, the Royal College of Pathologists (RCPPath) produced ‘Guidance on the reporting of thyroid cytology specimens’. The following retrospective audit conducted at Wycombe Pathology Department uses RCPPath guidelines with additional parameters.

Aims
To determine:
1. What proportion of reports include a Thy category and prose explanation.
2. The percentage of cases within each Thy category.
3. The association between cytology and histology by calculating positive predictive values (PPV), sensitivity, specificity, false negative rate (FNR), false positive rate (FPR) and overall accuracy.
4. The referral rate for Thy3-5 cases to regional specialists.
5. The correlation between local and regional opinions.

Methods
All thyroid cytology cases reported during a 22 month period were identified and analysed retrospectively using a computerised database.

Results
Of 812 prose reports identified, 793 had Thy categories translating to a 97.7% compliance rate.

Most cases were Thy2 (51.58%) with the least frequent being Thy4 (0.63%). This compares to recent audit findings of 44% and 2.5% at a Scottish institute.

PPVs for malignancy in Thy3a-Thy4 were 25%, 14.3% and 50% respectively. A multicentre study found corresponding PPVs of 13.5%, 32.2% and 64.7% which is more consistent with the increasing level of suspicion.

Although specificity (86%) and overall accuracy (72%) are acceptable, the sensitivity (55%) and FNR (20%) fall outside desired values. Literature suggests sensitivity should lie between 65-98% and FNR between 0-5%.

Tebeu PM et al. Positive peritoneal cytology in early stage endometrial cancer does not influence prognosis. BJC 2004; 91; 720-724


Milgrom SA et al. Positive peritoneal cytology is highly predictive of prognosis and relapse patterns in stage III (FIGO 2009) endometrial cancer. Gyné Onc 2013; 130; 49-53

British Association for Cytopathology Scientific Meeting 9-11th October 2014 - Abstracts
Five Thy3a and 19 Thy3f cases held discrepancies with specialist opinions inferring a 42% and 43% diagnostic resolution. This equates to a 42.5% resolution in ‘indeterminate cases’ from a review assessing second opinions.

**Conclusion**

Whilst Wycombe is compliant with several key standards, significant improvement is required in Thy3-5 categories to increase overall sensitivity and lower the FNR. Referral to specialists will reduce diagnostic uncertainties.

**References:**

5. Gerhard, Rene MD, PhD 1; Boemer, Scott L. MD, FRCPC 2. The value of second opinion in Thyroid cytology: A review. *Cancer Cytopathology* 2014: 122(8):611-619

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**Audit of accuracy of ultrasound guided FNAs of axillary lymph nodes in patients with symptomatic breast cancer.**

Dr TF Lioe, Dr A Brady, Belfast City Hospital, 51 Lisburn Rd, Belfast, BT9 7AB

**Summary Abstract**

**Aims of the audit were to**

1) To determine the accuracy of using ultrasound guided FNAC to assess and stage the axillae of women diagnosed with symptomatic breast cancer to select for SNB.

2) To evaluate the limitations of the above investigations by reviewing all false negative cases.

To do this we analysed 100 consecutive axillary lymph node FNAs on patients diagnosed with symptomatic breast cancer (Oct 13- May14) in the Belfast trust and looked at what proportion were C1, C2, C3, C4, C5. We then looked at subsequent resection specimens – Sentinel lymph node or ANC to see if the FNA result matched the lymph node status on resection.

Our results showed No false positive FNAs - a Malignant FNA - 100% sensitive
False positive rate 0%
Positive predictive value – 100%

False negatives – 11/48
Benign FNA - 77% specific
False negative rate – 23%
Negative predictive value – 77%
Overall US guided FNA identified 45/58 cases (78%) with node positive disease preoperatively.

Analysis of the false negative cases showed that 10/11 false negative cases were true false negatives
5 cases were micrometastatic deposits in lymph nodes
1 case had isolated tumour cells
Size of the involved nodes ranged from 8-22mm
2 cases of micrometastatic disease had further lymph nodes involved on ANC.

Conclusions
No false positive FNAs
US-guided FNAC of axillary LN in breast cancer patients can reliably predict the presence of metastases and therefore refer the patients to the appropriate surgical treatment, avoiding the SLNB and proceeding straight to ANC.

Reasons for false negatives
- poor sampling technique
- LN seen on US may not be the same as sentinel node resected
- In some cases involved sentinel nodes small – 8mm – difficult to detect on US
- Interpretive error in reporting FNAs
- ITCs or micrometastasis – needle may miss tumour 6/11 cases
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Gynaecological Cytology Oral Session 11th October 2 pm

Outcomes of positive HR-HPV Test of Cure on negative, borderline or low grade dyskaryosis cytology following treatment for at least CIN1

C Launay, SJ Johnson, JN Bulmer, Department of Cellular Pathology, Royal Victoria Infirmary, Newcastle upon Tyne, NE1 4LP

Summary Abstract:

Aims: High risk subtypes of human papilloma virus (HR-HPV) are found in over 99% of cervical cancers, 70% being subtypes 16 or 18. HR-HPV test of cure (TOC) testing of negative, borderline or low grade follow-up cytology after treatment for cervical intraepithelial neoplasia (CIN) started at Royal Victoria Infirmary (RVI) from 26/3/12 in line with national protocols (Year 1/Y1 - first 6 months samples only, year 2/Y2 - all follow-up samples). We aimed to assess outcomes after “failed” TOC.

Methods: The records of all women failing TOC 1/4/12-30/9/12 (Y1) and 1/4/13-30/9/13 (Y2) were reviewed for pre-treatment, treatment and post-treatment cyto/histology, TOC HR-HPV subtype, age at TOC, treatment-to-TOC time interval, and colposcopy/cytology/histology follow up. SurePath cytology and Roche Cobas HR-HPV testing were used, the latter giving results for types 16, 18 and/or “other”.

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Results: There were 312 failed TOC: 37 in Y1, 275 in Y2. The TOC cytology was negative/borderline/low grade dyskaryosis in 30 (81%)/5 (14%)/2 (5%) for Y1 and 236 (86%)/16 (6%)/23 (8%) for Y2, respectively. HR-HPV subtype was “other” only in 25 (68%) Y1 and 222 (81%) Y2.

Pre-treatment maximum cytology was low grade dyskaryosis in 6 (16%)/68 (25%) Y1/Y2, and high grade dyskaryosis in 31 (84%)/206 (75%) Y1/Y2. Highest treatment CIN was CIN1 in 2(5%)/43 (16%) Y1/Y2, and CIN2+ in 35 (95%)/232 (84%) Y1/Y2.

Following failed TOC, colposcopy was normal in 20 (54%)/177 (64%) Y1/Y2. Histology was low grade in 13 (35%)/75 (27%) Y1/Y2, and CIN2+ in none (0%)/13 (5%) Y1/Y2.

Conclusions: The majority of women who failed TOC had a subsequent normal colposcopy assessment. Most women needing biopsies had low grade changes not requiring treatment but a minority had CIN2+. The majority of HPV detected at TOC was “other” (non-16, non-18) only, in contrast with the majority of cervical cancers caused by HPV 16 and 18.

References:

RISK FACTORS FOR POSITIVE HR-HPV DNA IN IRISH WOMEN AFTER TREATMENT FOR CIN

Maggie Murphy, Sinead O’Brien, Sinead Kinsella, Alison Malkin, Sarah Power, Yvonne Power and Colin Clelland, MedLab Pathology, Unit 3, Sandyford Business Centre, Sandyford Business Park, Dublin 18, Ireland.

Summary Abstract

Persistent HR-HPV infection is the initial requirement to induce most cases of cervical cancer (1). Infection with high risk HPV for more than 2 years has been shown to be a major factor in the development of cervical cancer and its precursor lesions. Smoking and past history of smoking have been linked to HPV infection (2). HPV 16 and HPV 18 are the most common HPV types found in cervical carcinomas worldwide (1). Only 10% of people who have HPV progress to cervical cancer, with 90% of acute HPV infections clearing (3). HPV is more common in women who have had previous cytological abnormalities (4).

The aim of this study was to determine the prevalence of HR-HPV DNA genotypes in women post treatment for CIN in an Irish population and to examine whether certain co-factors such as smoking, cytology result, age and genotype of HPV are associated with the presence of HR-HPV after treatment at routine 6 and 18 month follow-up.
The findings could help to refine the management of women after treatment.

A total of 492 samples were received with a HR-HPV prevalence of 15% with some cytological abnormality found in 6.8%. 78% of HR-HPV positive patients were positive for one or more of 12 pooled HR-HPV types plus or aside from HPV types 16 and 18. The risk of HR-HPV positivity was greatest in women aged over 45 years. HR-HPV was detected in 19.6% of smokers, 13.2% of previous smokers and 9.7% of non-smokers.

The risk of HR-HPV positivity was the same for women at 6 and 18 months (12.4%) routine testing after treatment. Only 5.3% of women had both HR-HPV tests positive at 6 and 18 months after treatment.

When the cytology was HSIL or ASC-H the HR-HPV test was always positive.

References


Koilocytes & colposcopy-Mild changes

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Background

The introduction of the ABC 3 guidelines (2013) re-categorised koilocytosis from the borderline changes category to mild dyskaryosis. The NHS England HPV triage management protocol recommended that patients referred to colposcopy with a high risk HPV result (HRHPV), and no colposcopic abnormality can be safely returned to age related recall. This caused some confusion amongst colposcopists, and deviation from protocol.

Objective

The aim of the audit was to evaluate the colposcopic impression and management of patients referred to Gloucestershire colposcopy unit with mild dyskaryosis HRHPV in the period 1st April 2012 to 31st March 2013.

Method

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The colposcopy database that is used in the Gloucestershire NHS hospital trust was searched for patients that attended colposcopy with a mild dyskaryosis HRHPV result from 1st April 2012 to 31st March 2013. This was year one of HPV triage, which enabled patient follow-up at 6 and 12 months, which were the intervals used by non-compliant colposcopists.

Results

34 patients were referred to colposcopy with a cervical cytology result of mild dyskaryosis HRHPV. 21 (62%) patients had no colposcopic abnormality seen, and discharged to age related recall. 7 (21%) patients had no abnormality and were placed on 6 month recall. The 6 month follow-up cytology and colposcopy was negative. 2 (6%) patients with no abnormality were recalled in 12 months. No abnormality was seen at 12 months. 2 (6%) patients from the audit period had CIN3 on biopsy.

Conclusion

The audit agreed with the NHSCSP HPV management pathway, that patients with mild dyskaryosis HRHPV with no abnormality seen colposcopically can return to age related recall. The 2 CIN 3 cases concurred with Smiths (2012) view that the aim of the pathway was to reduce CIN2 or worse, not obsess over low grade changes. Recognition of HPV satellites in colposcopy can improve compliance with the pathway.

References


Poster Presentations

Improving the cellularity and reducing blood contamination of ThinPrep cervical cytology samples by increasing filter pore size

Sarah Brady*, Sinead O'Brien, Philip Larkin, Sinead Kinsella, Colin Clelland Dublin Institute of Technology, Dublin* and MedLab Pathology, Dublin

Summary Abstract: Cervical samples in PreservCyt often contain intact and disrupted red cells that have a tendency to block the pores of the standard ThinPrep Gyn filter. This can result in samples that contain scanty or inadequate numbers of squamous cells. This obstacle has been partially overcome by using a glacial acetic acid (GAA) wash prior to processing. However, the nuclear changes caused by a GAA wash can be confusing for cytologists and hampers the accurate interpretation of abnormalities.

Methods

We processed the residue of 118 cervical samples that were otherwise ready for disposal on a T2000 processor using polycarbonate filters of varying pore size,
namely 8, 12, 14, 20, 25 and 30 microns. We analysed the slides for their content of red cells and red cell fragments, overall numbers of epithelial cells, cell groups and single cells. We used samples reported as negative, low grade and high grade including cases of small cell dyskaryosis as well as bloodstained samples.

**Results**
The most significant findings were of substantial losses of red cells and red cell fragments with greater yields of single cells and cell groups with filters of pore sizes of 12 and 14 microns. Single cell dyskaryosis was still identifiable in samples processed on 14 micron filters. This small study shows no evidence that diagnostic cells including small cell dyskaryosis are lost through the 12 or 14 micron filters.

**Conclusions**
We suggest that 12 to 14 micron filters may be more appropriate for processing bloodstained cervical samples than using a GAA wash.

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The diagnosis of Kikuchi-Fujimoto disease on a fine needle aspiration smear: a case report.

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**INTRODUCTION**
Kikuchi-Fujimoto disease (KFD), also known as histiocytic necrotising lymphadenitis, is a self limiting condition of unknown aetiology, thought to affect young women of East Asia and Japan more commonly. The patients typically present with flu-like symptoms and posterior cervical tender lymphadenopathy. Although the final diagnosis is often made with the histology of an excision biopsy, KFD could be suggested as a possible diagnosis based on the findings of a fine needle aspiration (FNA) smear. However, with reported accuracy rates of 56% for the FNA, making such a diagnosis is certainly not for the faint-hearted.

**CASE REPORT**
A 29 year old female of Pakistani origin presented with cervical lymphadenopathy, fevers and headache. Blood tests, including a full blood count were unremarkable. An ultrasound scan showed 7 x 8mm lymph nodes in the posterior triangle of the neck with a few reactive lymph nodes and raised the possibility of tuberculosis. A subsequent FNA smear was sent for analysis. An acid-fast bacillus test performed was negative for tuberculosis.

The FNA smear showed several lymphocytes and tingible body macrophages with eccentrically placed nuclei. There were abundant cellular debris and several degenerate cells. The FNA concluded by suggesting KFD as a likely diagnosis with the proviso that a lymphoproliferative disorder couldn’t be excluded. As such an excision biopsy was recommended.

The subsequent excision biopsy showed areas of necrosis and apoptosis devoid of neutrophils favouring KFD over systemic lupus erythematosis or infectious lymphadenitis.

**CONCLUSION**

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With meticulous attention to the pathognomonic features, it is possible to make a cytological diagnosis of KFD. However, with reported false positive rates of 37%, histological confirmation is often warranted. As demonstrated in our approach above, suggesting KFD on cytology will help clinicians rule out the important negatives whilst providing the much needed reassurance for the worried patient.

REFERENCES


2 Tong TR, Chan OW, Lee KC. Diagnosing Kikuchi disease on fine needle aspiration biopsy: a retrospective study of 44 cases diagnosed by cytology and 8 by histopathology. Acta Cytol. 2001 Nov-Dec;45(6):953-7

Outcome of cervical cytology cases reported as ?Glandular Neoplasia

Dr Oluwaseyi Opanuga (Specialist Trainee 2 Cellular Pathology)
St Georges’ Hospital, Tooting, London

Abstract

Objectives:
1-To determine the Positive Predictive Value (PPV) of ?glandular Neoplasia and borderline nuclear changes in glandular cells by comparing and correlating the cytology and histological reports.

2- Compare the Positive Predictive Value (PPV) to other recent studies in Literature.

Design: Retrospective review

Method: Review of the cytology and histology reports via electronic pathology record system of patients reported as glandular and borderline nuclear changes in glandular cells and their subsequent histology if available over a 3 year period (2011 – 2013) in West Kent pathology Network.

Results: Group 1 ?glandular neoplasia
Group 2 Borderline nuclear changes in glandular cells
The PPV of group 1 was 73% compared for 75.4%, 66.3%, and 52%. However the PPV of clinically significant lesion was 89% compared for 80% and 81%. The PPV of group 2 was 11% as compared to 24.1% and 17% and PPV of clinically significant lesion in group 2 is 23% as compared to 56%.

Conclusion: Women with ?glandular neoplasia on cytology have a high probability of a glandular lesion and even higher probability of clinically significant lesion and should be referred for colposcopy. Borderline nuclear changes in glandular cells might require further evaluation before referral for colposcopy.
Appraisal of the accuracy of fine needle aspiration cytology in the diagnosis of thyroid disease.

S Ahmed¹, J Leitch¹, M AL-Dahhan¹: Colchester Hospital Turner Road, Colchester, Essex, CO4 5JL

Abstract summary:

Fine needle aspiration cytology (FNAC), is a well-established diagnostic modality for assessing thyroid nodules.

Recently published data regarding thyroid cancer detection for thyroid FNAC indicate sensitivity for malignancy of between 65% and 98%, specificity of 76–100%.

We have performed a retrospective study of thyroid resection specimens in order to audit the FNAC reporting of thyroid nodules in our department.

All data required was retrieved using our electronic data base. Microsoft Excel was used for data analysis.

149 patients were involved in this study with female:male ratio of 5.2:1. 69 patients were found to have thyroid neoplasms.

Most of the FNA results were THY3 (56), followed by THY2 (42) and THY1 (40, including 14 THY1c). Only one FNA was THY5.

The FNA test performed in our department had a sensitivity of 59.4% and a specificity of 66.6% in establishing thyroid neoplasms (THY3-5). Higher sensitivity was achieved for malignant neoplasms at 69.2% while the specificity was around 64%.

Papillary and follicular tumours were the commonest types of thyroid neoplasms. Other neoplasms encountered were: Hurtle cell neoplasm (3), lymphoma (3), anaplastic (2) and 1 renal metastasis. FNA sensitivity for follicular tumours (adenomas and carcinomas) was much higher (47.5%) compared to papillary carcinoma (2%).
Our data reveal shortfalls in the sampling of thyroid nodules and in cytology reporting accuracy.

The cytology reporting sensitivity and specificity for neoplasia overall and malignancy are at the lower end of reported ranges.

We have a very low reporting rate for the malignant cytological category (Thy5) of less than 1%, probably contributed to by lack in reporting confidence and in sampling adequacy.

Sampling adequacy rates could be improved by the use of ultrasound guidance by a radiologist with subspecialist expertise.

Our histopathology department has also had some turnover in consultant staffing since the period of this audit (2008-2013). It will be informative to repeat this audit with the current consultant pathologists in post.

Reference:

High grade CIN after failed HR-HPV Test of Cure: comparison of preceding cytology and histology to women without high grade CIN

C Launay, SJ Johnson, JN Bulmer, Department of Cellular Pathology, Royal Victoria Infirmary, Newcastle upon Tyne, NE1 4LP

Summary Abstract:

Aims: High risk human papilloma virus (HR-HPV) occur in >99% cervical cancers, 70% being 16/18. Our HR-HPV TOC testing of negative/borderline/low grade follow-up samples after treatment for CIN started 26/3/12 using national protocols (Year 1/Y1: first 6 months samples only, year 2/Y2: all follow-up samples). We compared women with CIN2+ after “failed” TOC with other women who failed TOC.

Methods: The records of 312 women failing TOC 1/4/12-30/9/12 (Y1, n=37) and 1/4/13-30/9/13 (Y2, n=275) were reviewed and data compared.

Results: 13 women had CIN2+ on biopsy following failed TOC (none Y1, 13 [5%] Y2). The remaining 262 women in Y2 had normal colposcopy (178, 68%), inadequate colposcopy (1, 0.4%), normal/inadequate/low grade histology (79, 30%) or DNA‘ed (4, 1.5%).
TOC cytology was negative/borderline/low grade dyskaryosis in 9 (69%)/2 (15%)/2 (15%) for the CIN2+ group and 227 (87%)/14 (5%)/21 (8%) for the remainder. TOC HR-HPV type was “other” only in 7 (54%) of CIN2+ women compared with 215 (82%) of the remainder, and was 16/18/other in 6 (46%) of CIN2+ women and 47 (18%) of the remainder.

Highest treatment CIN was CIN1/CIN2/CIN3 in 2 (15%)/7 (54%)/4 (31%) in the CIN2+ group and 41 (15%)/130 (50%)/91 (35%) in the remainder. Excision was complete in 7 (54%) of the CIN2+ group compared with 150 (57%). The average treatment-to-TOC time was 88 months for CIN2+ women compared with 69 months. Mean age at TOC was 33 years (28-43) for CIN2+ women and 37 (22-70) for the remainder.

Conclusions: Women with CIN2+ after failed TOC have more borderline/low grade dyskaryosis cytology and less negative cytology at TOC; a higher proportion of HPV16/18 and a lower proportion of “other” only HR-HPV positivity; a longer interval between treatment and TOC; and a narrower age range. Pre-treatment cytology, treatment histology and completeness of excision were similar in both groups.

References:

Audit of thyroid FNAs at Queen Elizabeth Hospital (QEH) Gateshead, 2011 to 2013

Dr Simren Kaur Rakhra, MBChB and Dr Dianne Hemming, BSc MBChB FRCPath

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ABSTRACT

Thyroid cancer is the most common endocrine malignancy in the United Kingdom. Detection of thyroid cancer includes fine needle aspiration (FNA) of nodules for cytology, which can provide definitive diagnosis for malignancy and guide patient management.

This audit involved looking at the number of FNAs done in this district general hospital from 2011 to 2013, number of FNAs reported in each Thy category as well as follow up of cases reported as Thy3, 4 and 5, which were correlated against the published RCPath risk of malignancy, the main audit standard in this case. For local interest and audit, a consultant breakdown of cases and Thy categories reported was also carried out. The audit showed that a majority (50%) of cases were reported were benign (Thy 2) while 16.3% of cases were reported as Thy 3, 4 and 5.

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The risk malignancy based on follow up of Thy 3, 4 and 5 categories were comparable to the RCPath standards. The number of thyroid histology specimens was also explored; this showed that number of biopsies was increasing during this time period. Consultant breakdown did not reveal any outliers.

It was concluded that current practice is good practice as it meets the audit standards. This is especially important as this hospital department is not a specialist centre for Head and Neck/Thyroid pathology. To ensure accurate reporting, we feel that all Thy3, 4 and 5 categories should be double reported, this also increases exposure of pathologists to thyroid cytology. The potential of thyroid core biopsies in diagnosing and excluding malignancy raises the question of its increasing role in patient follow up and management. A re-audit should be carried out in due course to ensure practices continue to meet standards.

REFERENCES

Royal College of Pathologists (RCPath) standards from http://www.rcpath.org/publications-media/publications/datasets/datasets-TP.htm

British Thyroid Association (BTA) guidelines from http://www.british-thyroid-association.org/Guidelines/

A review of atypical ? benign pleural fluid cytology outcomes at Queen Elizabeth Hospital Gateshead, 2010 to 2013

Dr J Brown MBBS and Dr Sophia Williamson BM FRCPath., Department of Pathology, The Pathology Centre, Queen Elizabeth Hospital, Gateshead, Tyne and Wear, NE9 6SX

ABSTRACT

There are many causes of pleural effusions and they are often sampled for cytological diagnosis. Samples in Queen Elizabeth Hospital, Gateshead, are graded into categories C1 (inadequate) to C5 (malignant). There is little data on the subject of follow-up after C3 (atypical, likely benign) or C4 (atypical, likely malignant) cytology results and no current standards as to how many C3 category samples should be from benign or malignant disease.

The aim of this audit was to review all of the pleural fluid cytology samples which were coded as C3 over a 4 year period, from January 2010 to December 2013, in the Queen Elizabeth Hospital, Gateshead. The cases were followed up to see the final outcome (e.g. benign vs malignant).

Almost an equal number of benign and malignant outcomes were seen (45 malignant vs 43 benign), which is not in keeping with the ‘atypical, likely benign’ description of the category. The many outcomes included lung cancer (20.4%),

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pleural cancer (12.3%), metastatic cancer (3.5%), lymphoma (2.6%), heart failure (17.6%), pneumonia (9.7%) and benign pleural disease (4.4%). The remaining cases had unclear or equivocal outcomes. Most C3 cases were described as either lymphocyte-rich effusions or effusions with atypical cells, although these categories also had equal benign/malignant outcomes. 42.8% of the samples with ‘atypical cells’ turned out to be malignant, compared with 39.2% of the ‘lymphocyte rich’ samples. Of the malignant cases, 57% had confirmed pleural involvement.

The information collected highlights the fact that pleural fluid cytology reported as C3 can have a wide range of outcomes, including both benign and malignant. It also shows that the description of the pleural fluid (e.g. lymphocytic, atypical, etc.) has no significant bearing on the final outcome. The fact that some C3 cases are related to malignancy does suggest that this is a worthwhile category of diagnosis and may result in further investigations being performed in appropriate cases. The findings support the current reporting practice in the QEH Gateshead. A re-audit will be carried out to find cases with more recent clinical information on follow up. Further investigation into C4 cytology samples would be useful to add to the data collected and compare with the C3 category.

REFERENCES

BTS pleural disease guideline 2010 from www.brit-thoracic.org.uk

The Cytological evaluation of CUSA samples from the human brain.

Liz Chapman FIBMS  CSci , Anna Patterson , MSc, FIBMS, Dr. Brian Herron, FRCPath., Cons. Neuropathologist., Cytology Dept., Royal Victoria Hospital, 274 Grosvenor Rd, Belfast BT12 6BA

The Cavitron® Ultrasonic Surgical Aspirator (CUSA) fragments and aspirates a wide spectrum of firm tumours and is used in multiple surgical subspecialities including hepatobiliary, gastrointestinal and neurosurgery. It is commonly used to fragment tumours in the central nervous system as there is little transmitted movement to adjacent normal neural structures. Following biopsy for frozen section diagnosis the CUSA is used to debulk the tumour by fragmentation, irrigation, and aspiration. This aspirated material can be successfully used for cytological diagnosis and subsequent investigations.

Traditionally, the CUSA specimen is disposed of. Over the last three years, we, in the Cytopathology Laboratory in the Royal Victoria Hospital, Belfast, have obtained
these specimens and harvested the wealth of tissue therein. They have proved to be very useful in the definitive diagnosis of various tumours found in the brain and have, in some cases been the only diagnostic specimen. Frequently the initial biopsy is tiny and may have suffered drying artefact. The cytological quality and quantity of tissue available to assess in the CUSA specimen is often superior to the biopsy. Also, material from the CUSA specimen can be used for immunocytochemical and molecular investigations.

When received in the Cytology Lab, and aspirated material is simply centrifuged and some or all of the (usually copious) deposit transferred to 10% buffered formalin for processing, yielding one or several slides for examination.

The poster is an overview of the procedure with examples of diagnoses obtained.

**Cytology Clot Audit, Queen Elizabeth Hospital (QEH) Gateshead**

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**ABSTRACT**

Cell blocks are commonly processed from a variety of non-gynaecology cytology specimens and allow immunocytochemistry (ICC) and other ancillary investigations to be performed. The Royal College of Pathologists recommend that cell blocks should be made from serous fluids and peritoneal washings and reported. There is specific guidance in the lung cancer minimum dataset regarding the production of cell blocks in lung cytology specimens. The aims of this audit were to identify the diagnostic value of producing a cell block and to identify the cost of producing each cell block and identify where savings could be made.

The laboratory database was searched for all cell blocks produced from cytology specimens received between 1 January 2013 and 30th June 2013. The specimen type, whether or not ICC was performed and whether the cell block was diagnostically useful were recorded.

546 cytology specimens cases had cell blocks processed (extrapolated to 1,092 for costing purposes for one year). No ICC was performed on ovarian and miscellaneous fluids (66). Of 200 peritoneal washings, just 2 cases had ICC performed as was the case in 2 of 26 lymph node aspirates. In lymph node aspirates most of the cell blocks had insufficient cellular material for ancillary studies. 30 of 83

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pleural fluids and 7 of 35 ascitic fluids had immunocytochemistry, with the cell blocks deemed diagnostically useful in these specimens. 4 of 136 bronchial brushings/washings had ICC for diagnostic purposes but many more were submitted for EGFR and/or ALK.

It was concluded that full cell block production does not need to be routine for all cytology samples, but should continue for pleural and ascitic fluids where it is diagnostically useful, and bronchial fluids where it is a requirement. For all other cytology samples it would be more efficient and cheaper to produce a paraffin embedded cell block and storing it without producing H&E sections. As each cell block was estimated to cost £18 to produce from production to H&E section it was estimated that a saving in the order of £8,000/year could be made by restricting full processing of cell blocks to bronchial cytology specimens, ascitic fluids and pleural fluids.

REFERENCES

Royal College of Pathologists (RCPath) standards from http://www.rcpath.org/publications-media/publications/datasets/datasets-TP.htm