

Thyroid Cytology (Thy 3a)

David Poller, Consultant Pathologist

PHU, Portsmouth, UK

Thy 3a

- The Thy 3a diagnostic category is problematic, to some extent.
- It reflects diagnostic uncertainty in the Thy 3 category in cases intermediate in risk between low risk Thy 2 lesions and higher risk of malignancy lesions, Thy 4 and Thy 5
- The interobserver reproducibility of Thy 3a is also relatively poor
- The usual management of Thy 3a in the multidisciplinary setting is, at least in the 1st instance, to repeat the FNA. If this fails to resolve the clinical or ultrasound concerns, surgery should be considered after multidisciplinary review.

Thy 3a

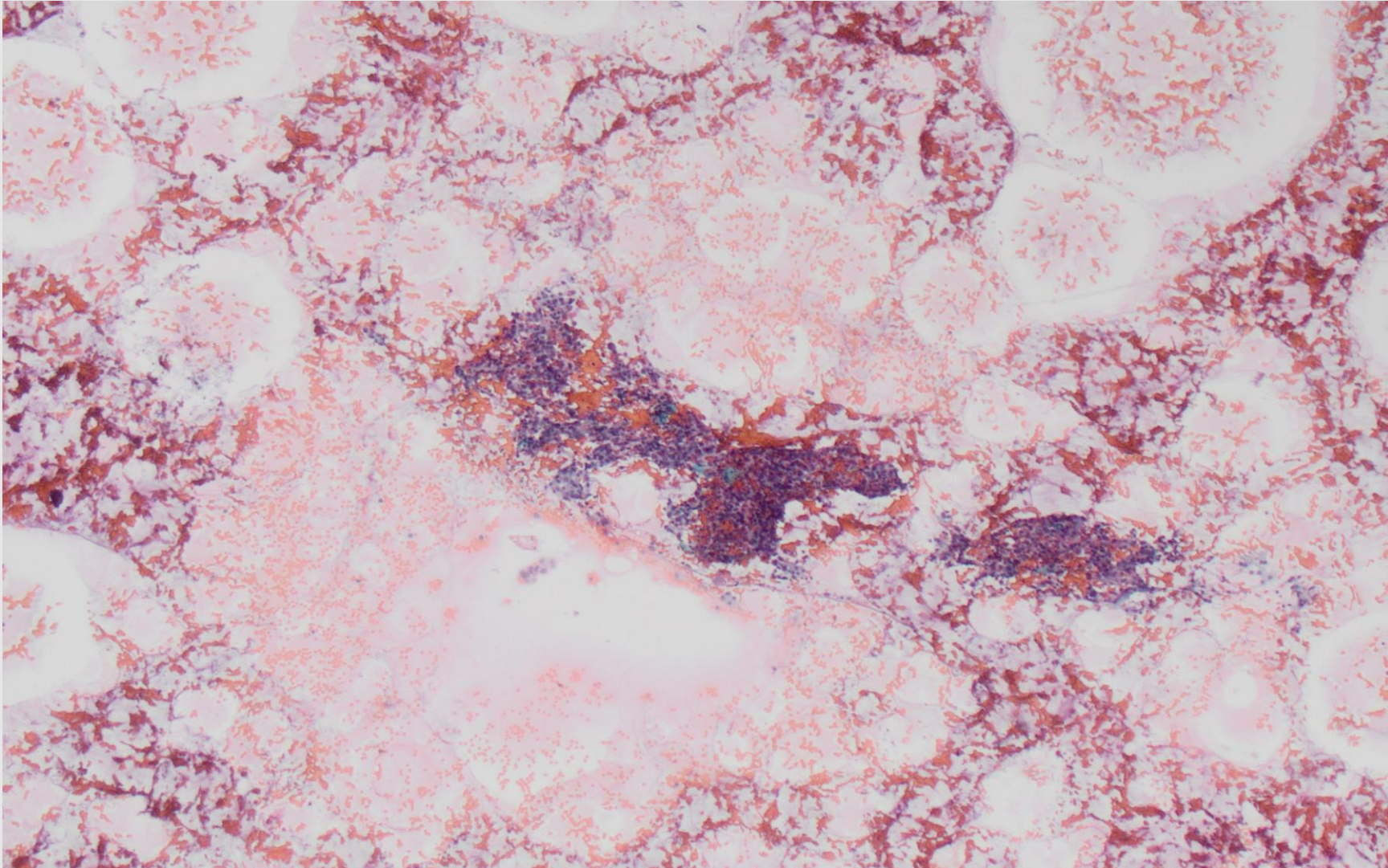
- The role of thyroid FNA is primarily to detect thyroid cancer
- The majority of thyroid cancers >85% are papillary carcinomas (PTC's)
- PTC's typically have characteristic nuclear features; nuclear grooving, hyperchromatism, papillary 3D clusters, intranuclear inclusions which can be identified in conventional smears; PAP or Giemsa. These cases if correctly sampled will give rise in the majority of cases to a diagnosis of Thy 4 (suspicious) or Thy 5 (malignant)
- The role of Thy3a is primarily to detect low cell yield PTC's
- Cases in the Thy 3a category with nuclear atypia will have a higher risk of malignancy than Thy 3a cases without nuclear atypia.
- This all sounds easy in theory- but in practice thyroid cytology at the Thy 2/Thy3 interface is often soul-searchingly challenging.

Thy3

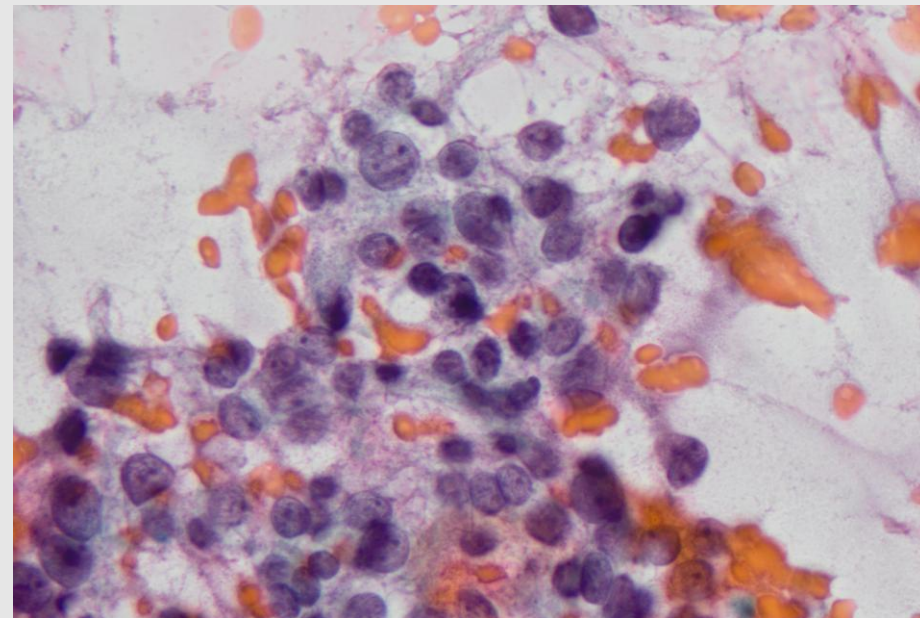
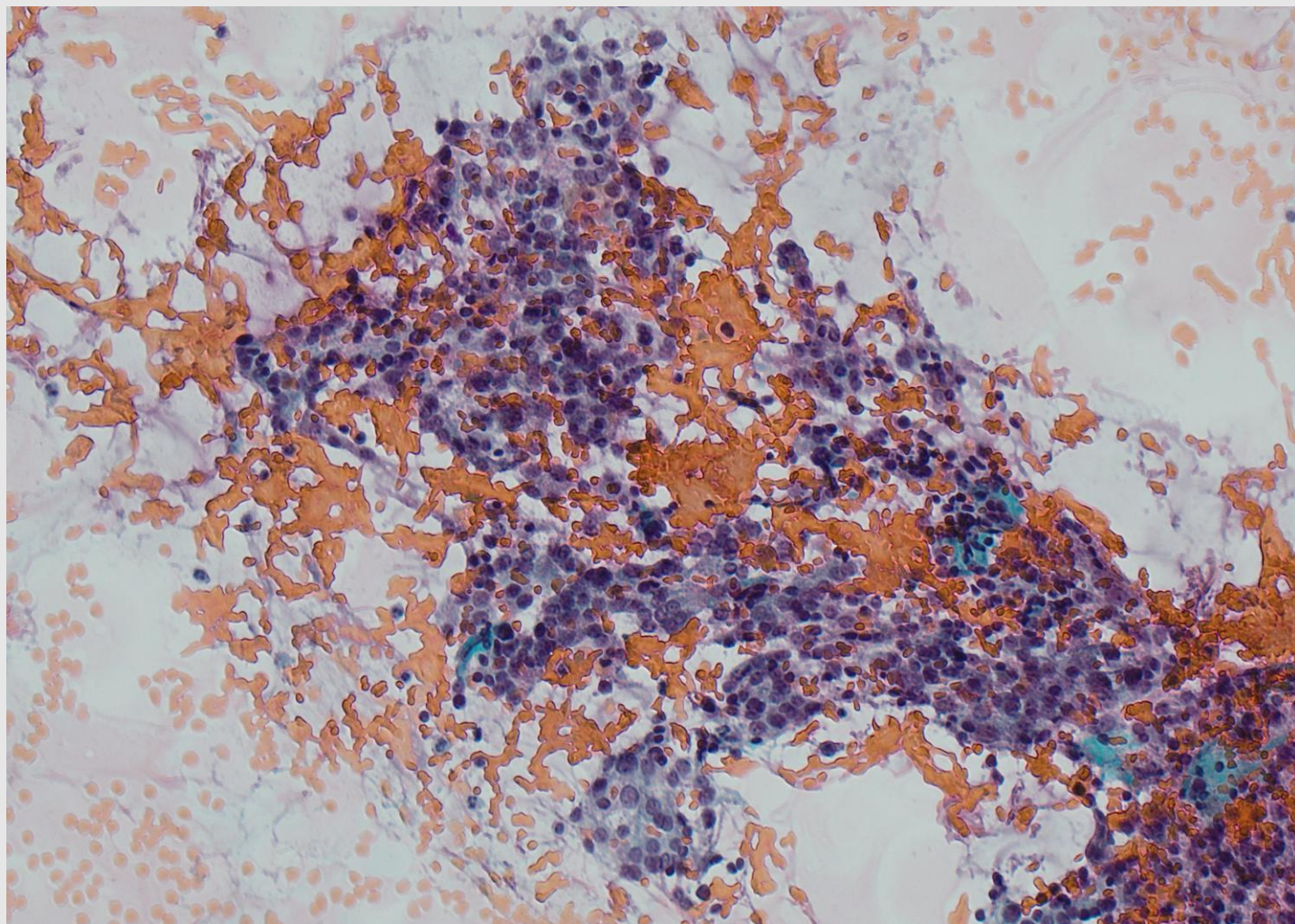
Case 1: A 15mm size predominantly solid but focally spongiotic U3 (low ultrasound risk) right thyroid nodule in a 40 year old Ukranian female (not known to be from Chernobyl region)



Case 1 Relatively cellular smear with some colloid. No obvious features of PTC



Case 1: Nuclear atypia is present on higher power (PAP smear)



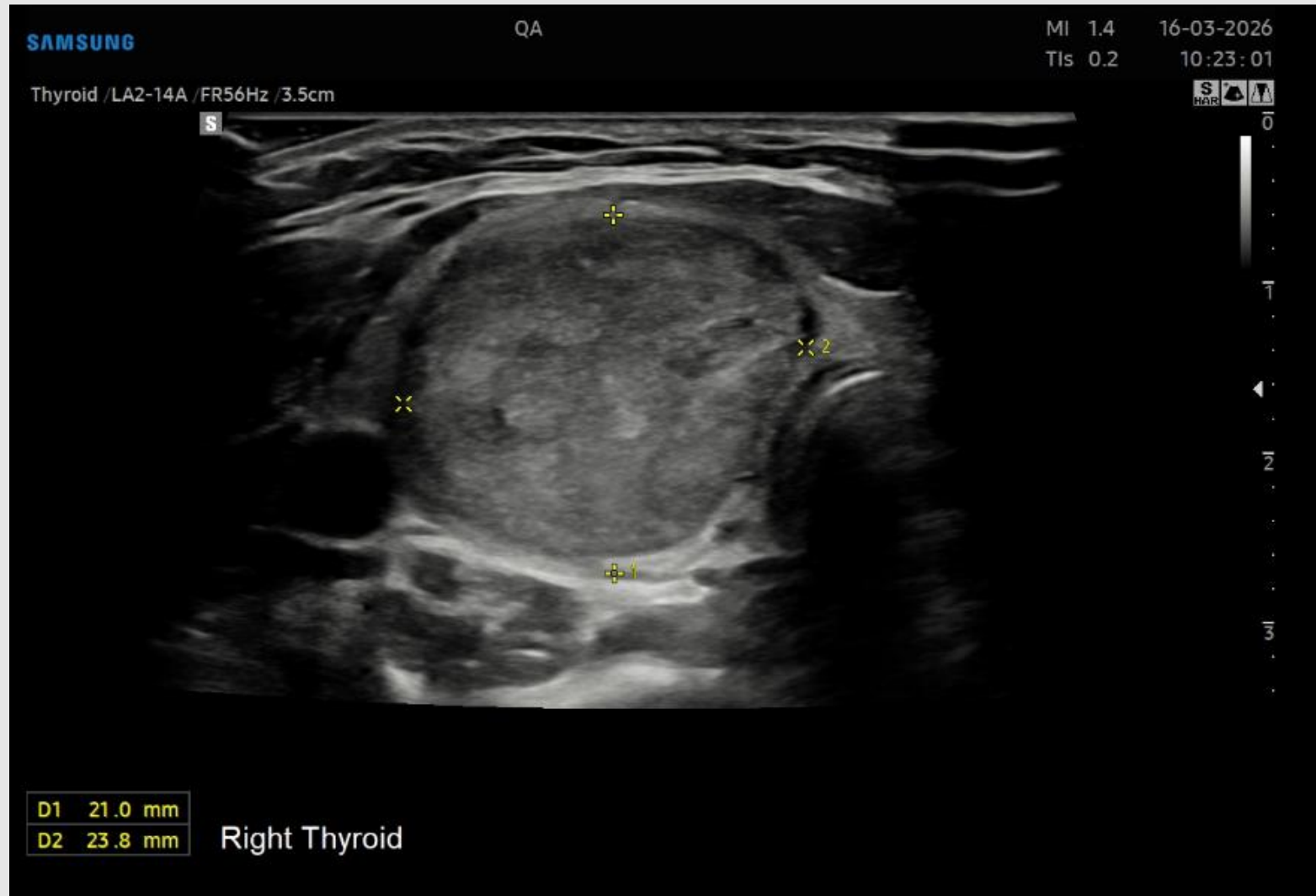
Case 1

- In this case the cause for the nuclear atypia is not apparent.
- The possibilities in this case include PTC- but the ultrasound appearances are against this- a predominantly solid but spongiotic nodule without concerning features eg egg shell calcifications, taller than wide, or irregularity of the margins.
- Perhaps anti- thyroid Ab- Hashimoto's thyroiditis
- Physiological thyrocytic atypia
- Other causes (e.g. radiation in a native of Ukraine may be relevant) but we don't have a history of this

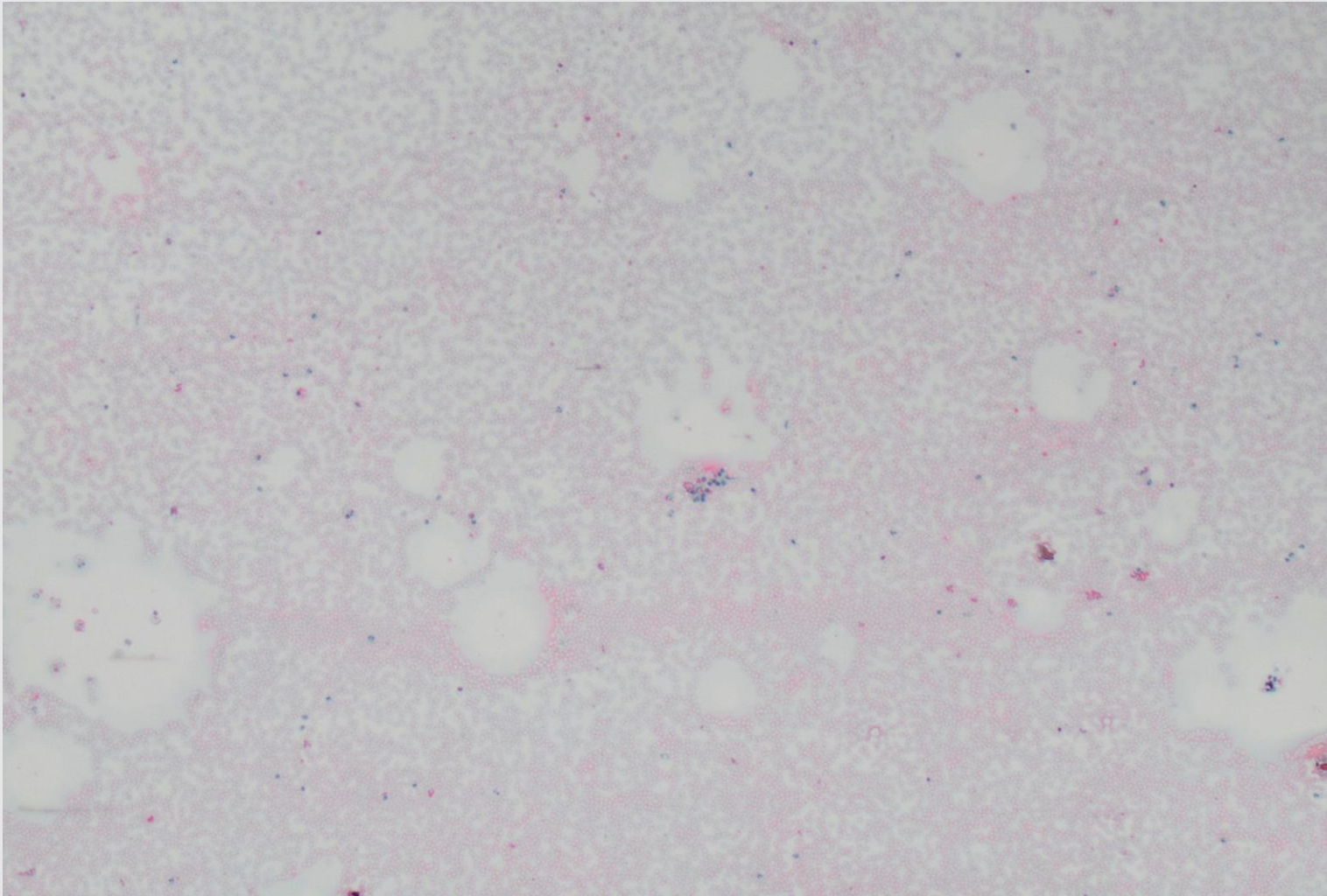
Case 1

Final diagnosis- Thy 3a (nuclear atypia)

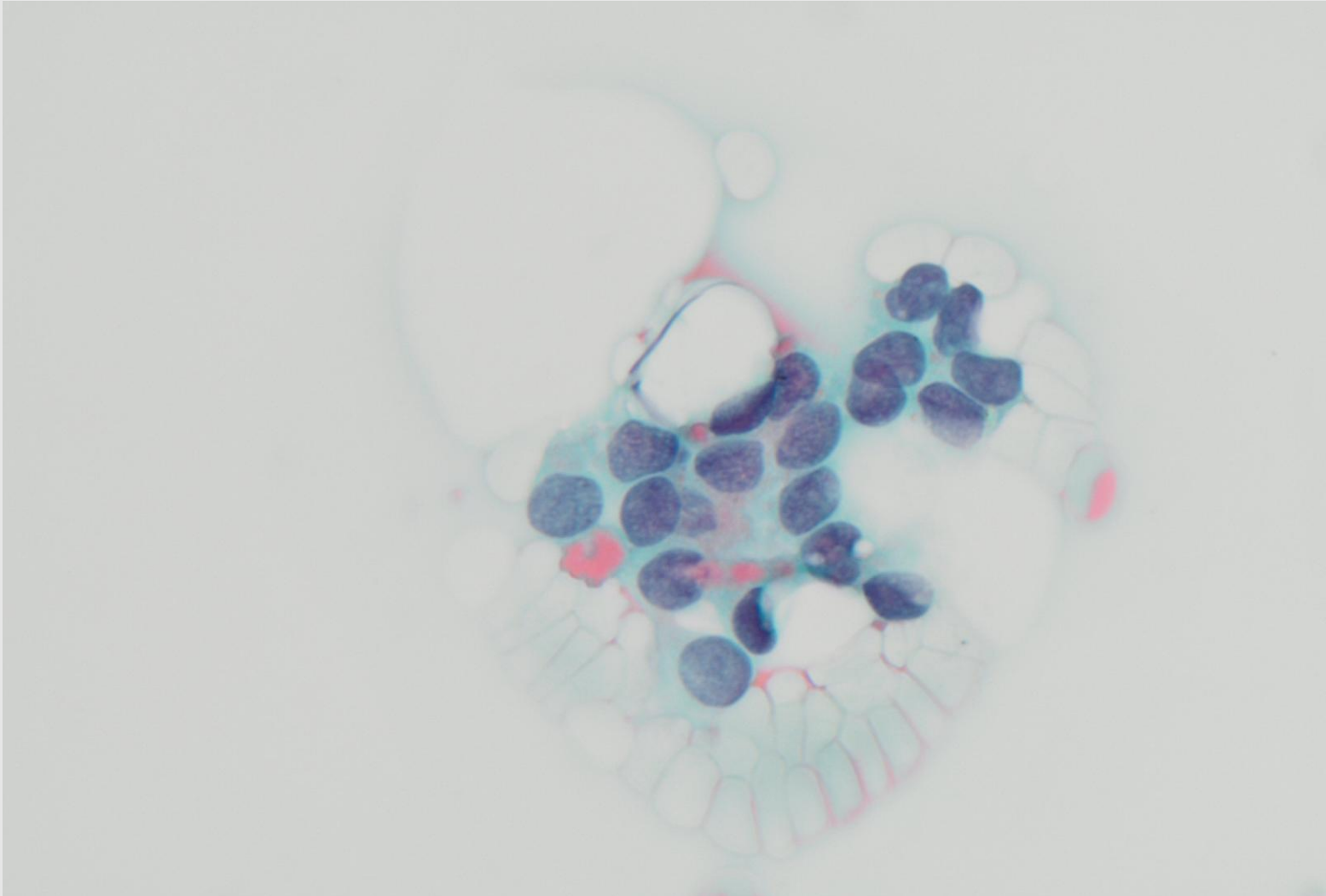
Case 2 40 y old female, bilateral goitre, enlarged right thyroid lobe, U3 solid nodule increased in size from 23mm->35mm, 1st FNA Thy 1, 2nd FNA



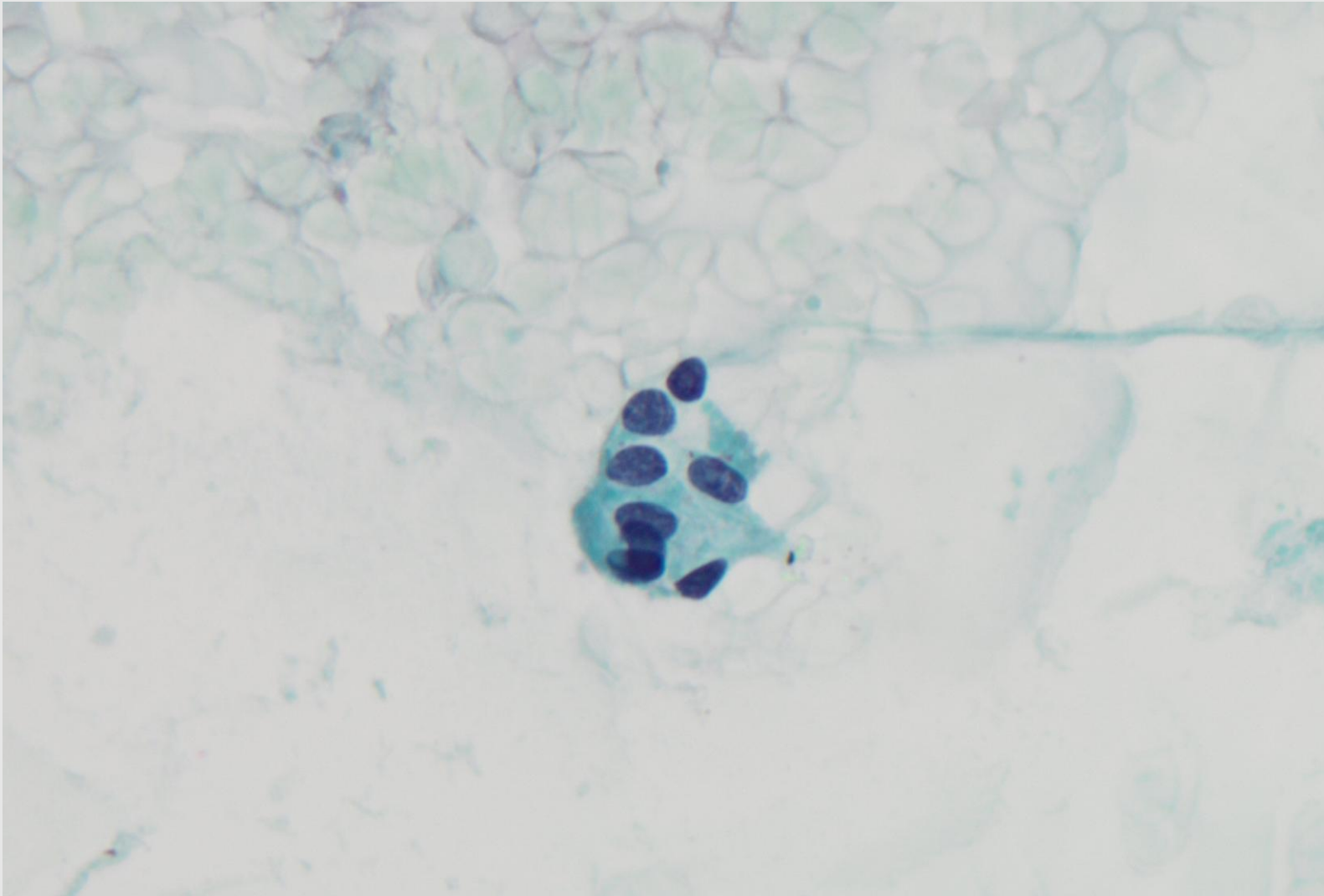
Case 2: Low power view showing a very low cellularity aspirate of borderline cellular adequacy



Case 2: Occasional groups show nuclear atypia



Case 2: Occasional groups show nuclear atypia

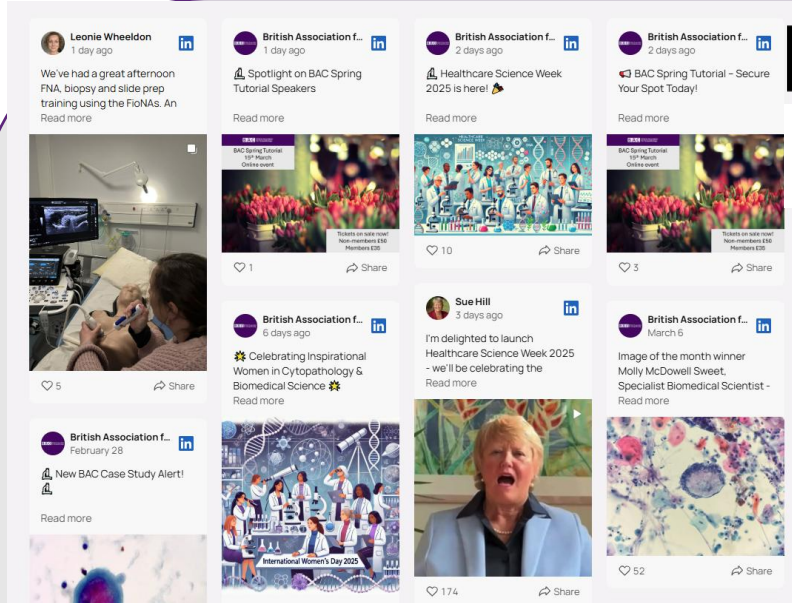


Case 2

- This is a common diagnostic problem, particularly in centres that do not undertake Rapid On Site Evaluation (ROSE)
- This is a very suboptimal specimen which shows a very low yield of cells but some cells show smearing/drying artefact & nuclear atypia
- These are probably benign but have to be regarded as Thy 3a (nuclear atypia)
- This FNA specimen needs to be repeated

Final diagnosis

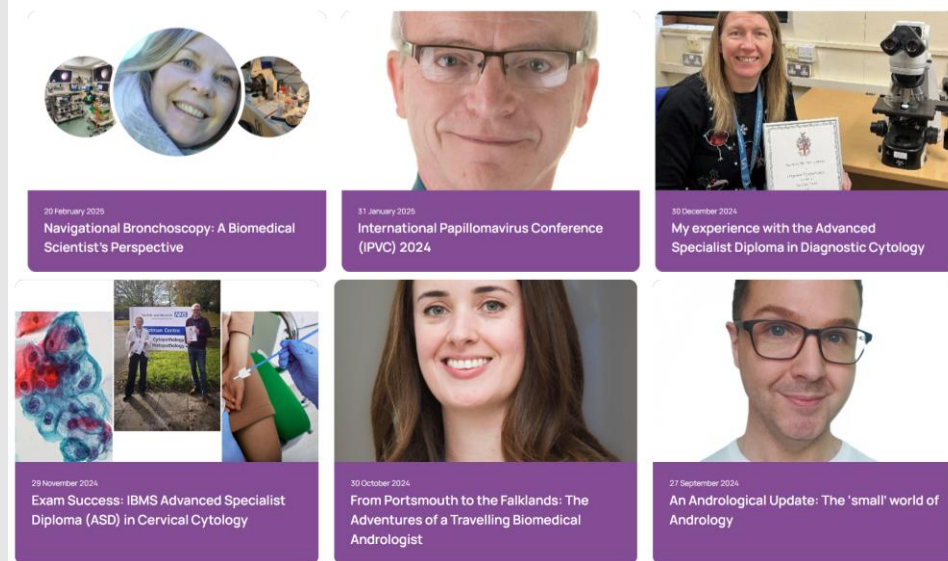
Thy 3a (nuclear atypia)



The latest cytology news

Educational links
&
Guidance and publications

Win BAC goodies by submitting an image of the month, case study or blog!!



Members only access

- Reduced fees for BAC events and webinars
- Exclusive access to educational content:

Blogs

Case studies / quizzes

Webinars

SCAN magazine

Lunchtime slide club

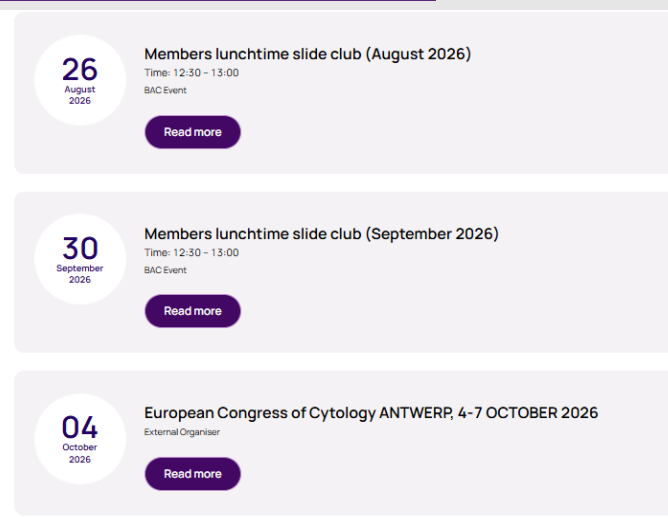
- Funding and bursaries
- EFCS membership included

Consultant £125

Trainee pathologist / BMS £30

Cytoscreener £30

Up & Coming Events



Members lunchtime slide club

SCAN

Direct contact with the Executive via the website "Ask the expert section"



26TH AUGUST 2026

Members lunchtime slide club (August 2026)

Time: 12:30 – 13:00

Please [Log in](#) to purchase tickets for this event.

More Information



Free to BAC members!

Register to join the new monthly BAC Members Lunchtime Slide Club.

If you have a camera and microscope set up to live stream your case or have digital images please bring them to this session.

Talk through, share or showcase any interesting or challenging cases you might have.

This is an informal space for members to learn, grow and interact with experts.

Register today!