

Demystifying Endometrial Hyperplasia

A review from Diagnostic Histopathology 19:7

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Endometrium

- Target for sex-steroid hormones
- Glands
- Stroma
- Proliferate under influence of oestrogen
- Mature/differentiate with progesterone

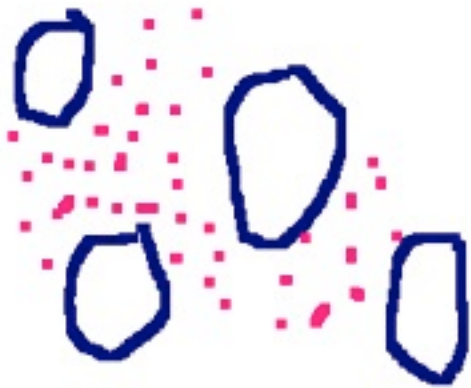
Hyperplasia

Unopposed oestrogenic stimulation

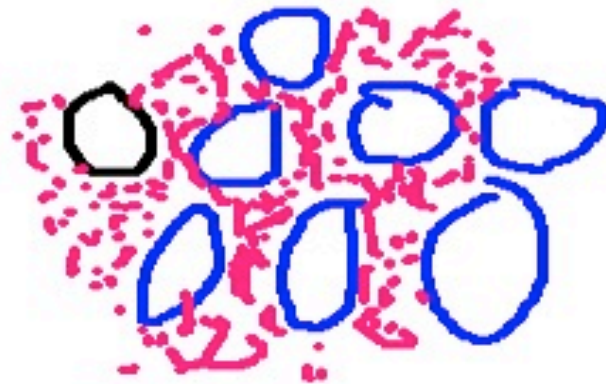
- Anovulatory sequence
- Granulosa cell tumours

Simple hyperplasia

- Gland and stromal proliferation
- Exaggeration of normal



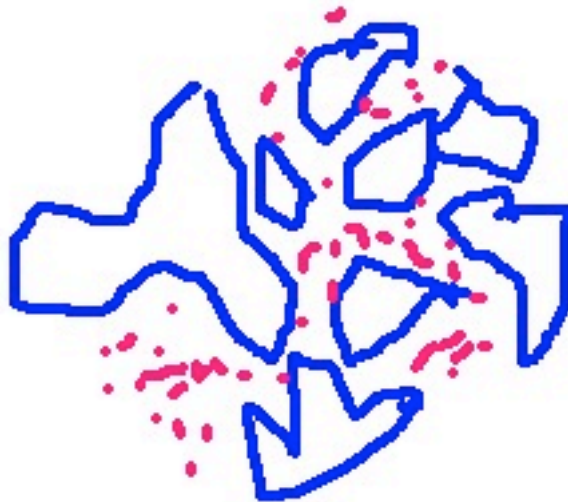
Normal



Simple hyperplasia

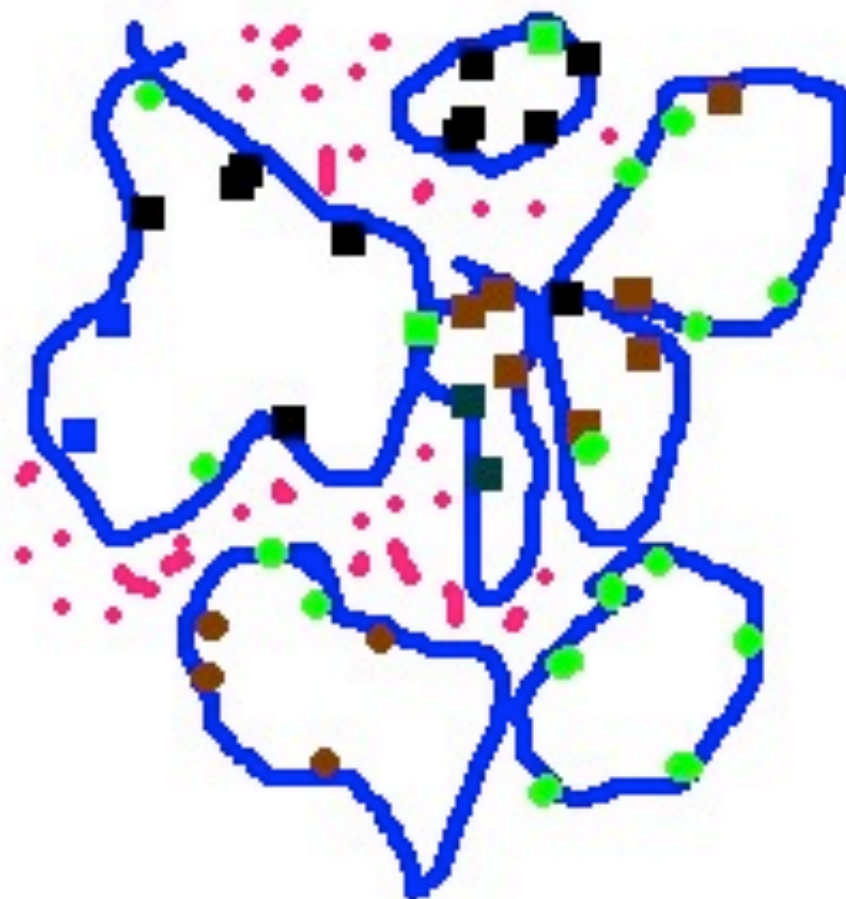
Complex hyperplasia

- Only glandular proliferation (without cytological atypia)
- Crowding and branching



Atypical hyperplasia

- Simple or complex (more often)
- With cytological atypia
- Strong association with endometrioid adenocarcinoma



Independent assessment

- Architecture
 - Simple
 - Wide spaced, smooth outlines
 - Complex
 - Crowded, branching
- Cytology
 - Hyperplastic
 - Like normal, slight enlargement
 - Atypical
 - Cytological atypia

Architecture

Cytology

	Simple	Complex
Hyperplastic	Simple hyperplasia	Complex hyperplasia
Atypical	Atypical hyperplasia (Rare)	Atypical hyperplasia

Simple hyperplasia - glands

- Perimenopausal - anovulatory cycles
- Often maintenance of gland/stroma ratio
- No crowding
- Diffuse/entire thickness
- Variability in size/shape of glands
 - Cystic/budding + small/smooth
- Columnar but can have patches of vesicular/clear cells or ciliated cells

Simple hyperplasia - stroma

- Stroma abundant
- “Naked nuclei”
- Spiral arteries poorly developed
- Superficial thin-walled vessels
 - Congestion, dilation, thrombosis
 - Stromal haemorrhage/necrosis
 - Polymorphs/oedema

Overall

- Resembles late proliferative phase
- Exuberant growth
- Association with carcinoma $<1\%$ (same as random occurrence).

Complex hyperplasia - glands

- May occur in young women with normal cycles
- More focal
- >gland:stroma
- Crowded/branching glands
- Blunt, columnar epithelium
- Pseudostratification, mitoses

Complex hyperplasia - stroma

- Compressed
- Maintained between glands

Overall

- Focal glandular proliferation mimics late proliferative phase
- Elsewhere normal endometrium exists
 - Appropriate to age/hormone status
- <3% associated with carcinoma

Atypical hyperplasia - glands

- Focal or multifocal
- Exclusively affects glands
- Cytoplasmic and nuclear atypia
- Crowding/back-to-back glands
 - Although a thin rim of stroma remains
- Multiple branching, infoldings and tufts (lacking FV cores).

Stroma

- Thin rim maintained between glands
 - Subjective, no?

Overall

- Diagnosis relies on nuclear/cytoplasmic features of atypia.
- Architecture is of secondary importance.

Cytological atypia

- Large nuclei (twice normal)
- Round instead of elongated
- Vesicular, not hyperchromatic
- One or more prominent nucleoli
- Loss of polarity
- Loss of cell/cell or cell/basement cohesion
 - Irregular masses, tufts
- Abundant cytoplasm, eosinophilia, indistinct cell borders.

Well-diff EACa

- Myometrial invasion most reliable criteria
- Invasion into “new stroma” (hyalinised/oedematous)



**I can has
Poland?**

- Cytologically atypical proliferation plus:
 - Small clusters/glands invading “new stroma” (hyalinised/oedematous fibrosis)
 - Solid growth of atypical cells (NOT squamous)
- Formation of tumour giant glands/cribiforming/loss of stroma
- Dominance of large, elongated, papillary fronds.

- Newly formed stroma (even without obvious invasion)
- Gland debris/neuts

Stromal proliferations



- <http://pskate1.deviantart.com/art/Different-kettle-of-fish-151241108>

Summary

- Simple/complex hyperplasia is OK
- Atypia is subjective
- Determining atypical hyperplasia from EACa can be almost impossible

**Schrödinger's Cat is
alive...**



**and very
pissed off**

How do you solve a problem
like classification?

An amendment to my initial
presentation

WHO94

- Most widely used system
- Basis of this paper
- Some say overly complex
 - Not the opinion of the authors in this paper

Other systems proposed

- Amalgamate simple/complex hyperplasia
- Amalgamate AEH with EACa
 - Endometrial neoplasia (EN)
- OR redefine AEH

Endometrial Intraepithelial Neoplasia (EIN)

- Molecular, morphometric and morphological criteria
- Includes exclusion of benign conditions and EACa
- Increased reproducibility (only supported by affiliated groups)

- Independent validation showed each system to be equally satisfactory.
- WHO more so for progression to EACa.

PUTTING THE "F"

BACK IN FREEDOM



★ TEAM ★
AMERICA
WORLD POLICE