

Continuing Education in Anatomical Pathology using digital images

Robin A. Cooke

From the middle of the 20th century continuing education in AP was done by using glass microscope slides.

Before this most AP was postmortem based and emphasised gross appearances.

Gross pathology was demonstrated using museum specimens.

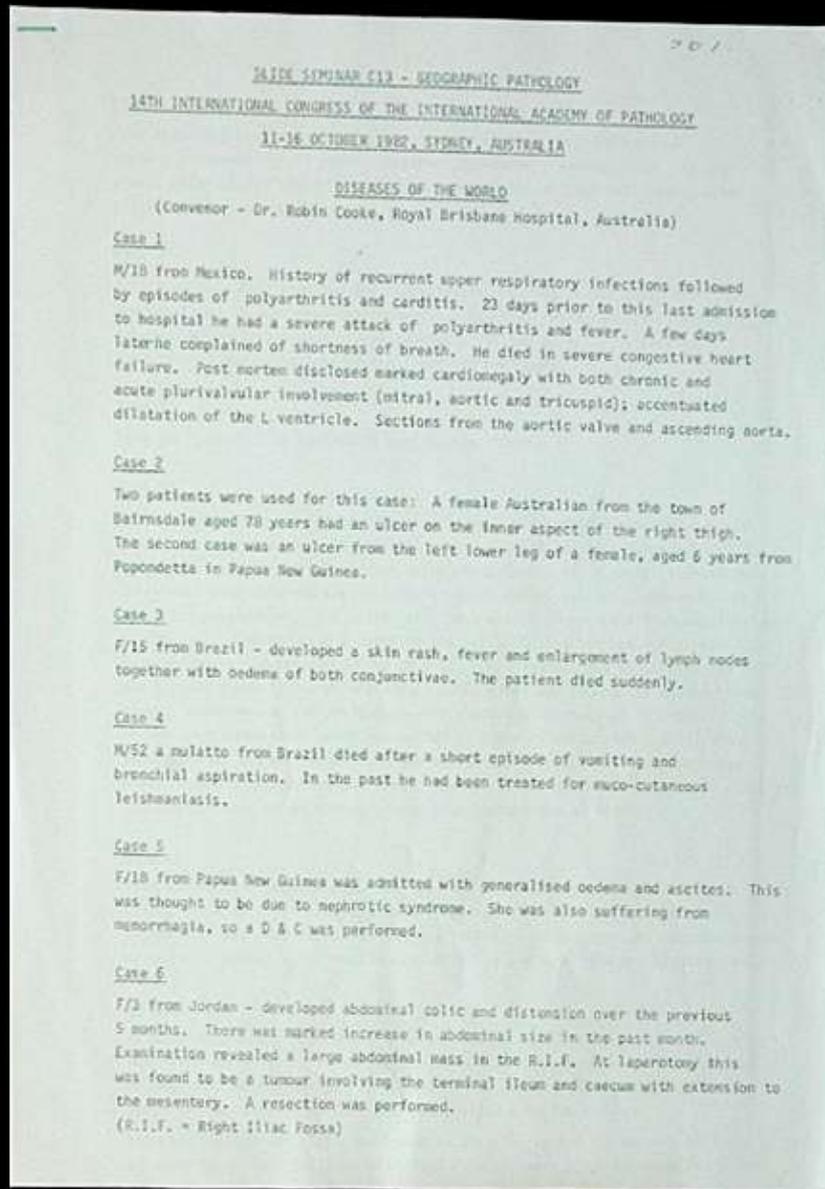
Then came 35mm kodachrome film that allowed educational presentations to include both gross pathology and microscopic pathology.

Presenters used to bring many large and cumbersome plastic carousels full of 35mm slides to their slide seminar presentations.

Slide seminars at
Sydney IAP
Congress 1982

2 history sheets
and one glass
slide per case.

Short discussions
in handouts typed
with a manual
typewriter.



Each presenter used
numerous 35mm
kodachrome photos
to illustrate the cases



IAP UROPATHOLOGY CASES 1994

- Case 1
Male 83 yrs found to have chronic renal failure during workup for total knee replacement. Investigations revealed a urethral stricture and moderate prostatomegaly. PSA not performed.
- Case 2
Male 65 yrs presented with nodule on rectal examination.
Bx - adenocarcinoma Gleason grade 4+4=8 bilaterally.
RPx - adenocarcinoma Gleason grade 5+2=7 organ-confined.
Negative margins and seminal vesicles.
- Case 3
Male 51yrs presented in 1992 with discomfort R scrotum and a hard R testicular mass. Tumour markers negative.
Gross: 8cm x5cm testis with 5cm multicystic tumour with areas of haemorrhage. A 3cm yellow-pink nodule abutted the cystic mass.
Micro: cystic tumour represents necrotic tissue.
Follow-up: post.op retroperitoneal irradiation. No evidence of recurrent disease.
- Case 4
Male 68 yrs presented with urinary obstructive symptoms.
TURP - 20 grams resected.
- Case 5
Male 67 yrs with obstructive urinary symptoms.
TURP - 18 grams resected.
Follow up - clinically well.
- Case 6
Male 83yrs presented with haematuria and obstructive symptoms.
DRE - large bulky gland but felt benign. PSA 27.
TURP - papillary tumour protruding from floor of prostatic urethra. 16gm resected.
Follow-up: post.op. PSA fell to 7.9 but rose to 20.7 after 4/12. Repeat TURP same pathology. Bilateral orchiectomy. PSA now 3.1. Clinically well.
- Case 7
Male 55 yrs presented first in 1986 with prostatism. IVP then normal but when repeated in 1990 showed 4cm mass L kidney as incidental finding. Solid on ultrasound. CT directed PNA showed carcinoma.
Follow-up: no evidence of disease, clinically well.

Sydney 1994

Still short histories
and handout notes

typed on a manual
typewriter.

Slides in plastic
boxes.

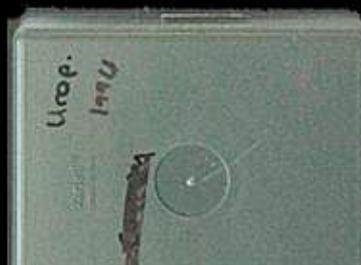
Every pathologist in
the world probably

has drawers full of
such boxes with the

notes filed
somewhere else

and the two cannot
be matched up for

revision or teaching



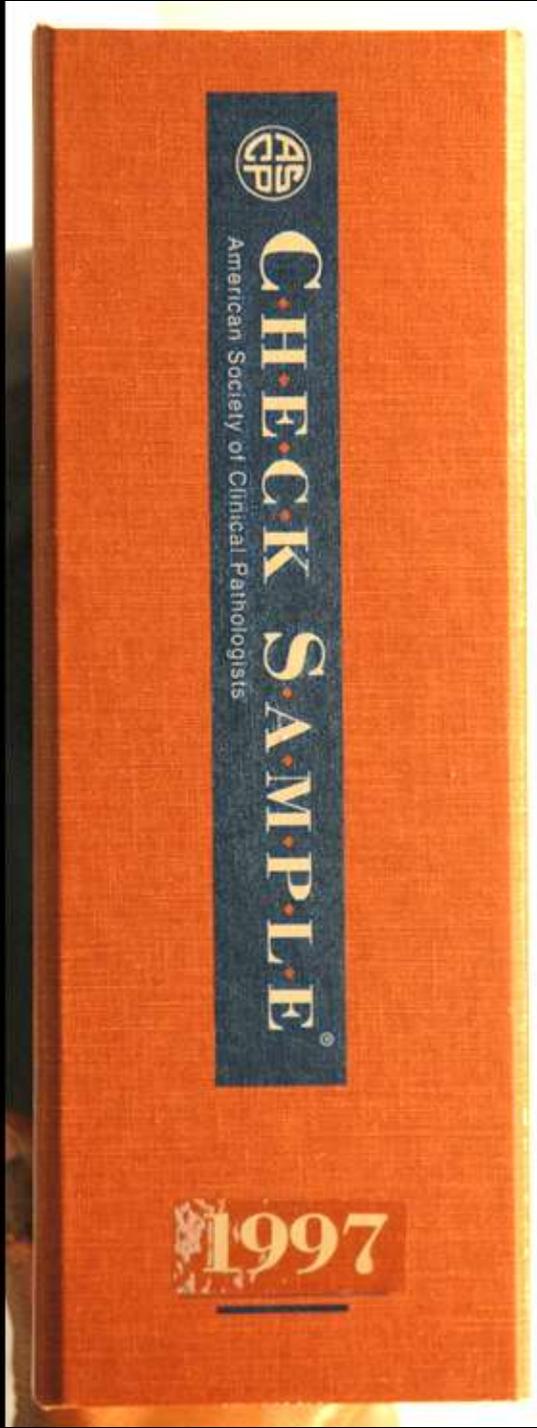
In the early 1980s slide seminar preparers started to include one or two 35mm kodachrome transparencies with each case.

They were expensive, not always good, and how do you look at them when you are at your microscope looking at the glass slide.

Then how do you file them.

ASCP educational
slide seminar 1997

Another method of
presenting slide
seminars.



Lengthy discussion

A few 35 mm photos

Expensive, heavy

How do you look at
35mm photos

How do you file them



HISTORY

A 25-year-old primigravida woman with dyspnea presented to the emergency department during the 36th week of her pregnancy. Her blood pressure was 154/91 mm Hg at presentation and was later measured as 117/82 mm Hg 1 hour later. Her labia majora had been markedly swollen for 4 weeks. The dyspnea occurred while she was at rest. At the emergency department she was given diphenhydramine and sent home.

The woman returned to the hospital 4 days later in labor. She was still normotensive and had no proteinuria. Physical examination showed an S_3 gallop and right upper quadrant tenderness. She had peripheral edema and labial swelling. No rales were heard over the lung fields. A chest radiograph showed cardiomegaly. Electrocardiogram showed sinus tachycardia, right axis deviation and right ventricular hypertrophy with strain (Figure). Doctors performed a cesarean section because of the severe vulvular swelling, and a normal infant was delivered without complications. On the following day, the patient developed hypotension, peripheral edema and had no urine output. Laboratory data are shown. She then developed respiratory distress requiring intubation and died suddenly during insertion of a pulmonary artery (Swan-Ganz) catheter; less than 24 hours after her child's delivery.

At autopsy, the decedent showed marked labial swelling and peripheral edema. There were large amounts of pleural, pericardial, and

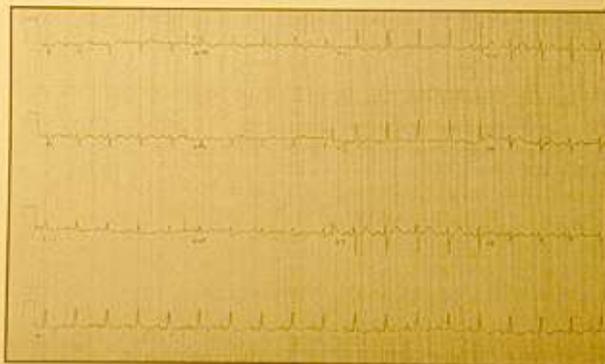
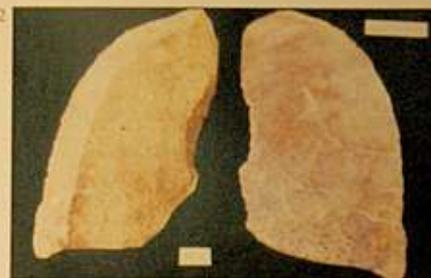


Figure. Electrocardiogram shows sinus tachycardia, right axis deviation, and right ventricular hypertrophy with strain.



CHECK SAMPLE

FP 97-1



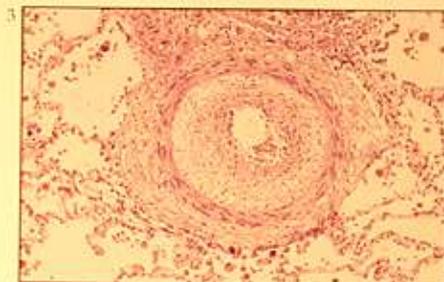


Image 3. This pulmonary artery shows fibrointimal hyperplasia. Medial hypertrophy is present but not as striking as the intimal thickening. H&E, medium power

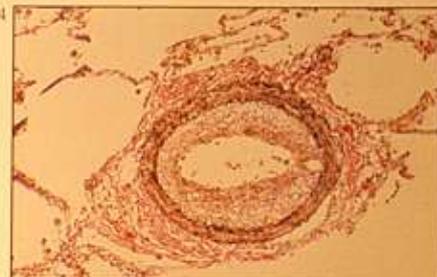


Image 4. Fibrointimal hyperplasia and medial hypertrophy are easily seen with elastic stains. Elastic van Gieson, medium power

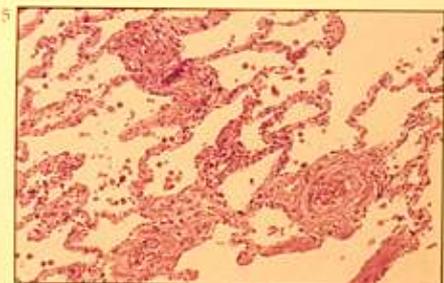


Image 5. Medial hypertrophy of these small pulmonary arteries effectively reduces their lumen to a pinpoint. H&E, medium power



Image 6. A recent thrombus is seen in this pulmonary artery. H&E, low power

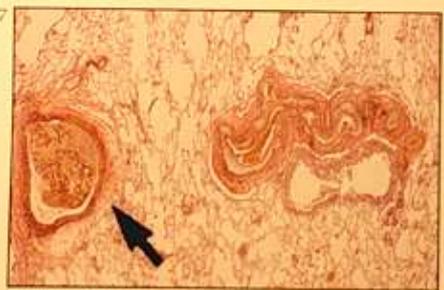


Image 7. Another recent thrombus (arrow) is seen in a pulmonary artery while another artery shows intimal thickening. Elastic van Gieson, low power

FP 97-1

-1



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-2



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Critique
(Answer)
Slides start
here

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3



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How do you provide glass slides for an ever growing number of attendees at meetings?

How do you demonstrate biopsy pathology which was rapidly becoming the major part of surgical pathology?

In the mid 1990s along came digital photography.

This introduced unlimited possibilities for disseminating information to audiences of unthinkable numbers.

Small biopsies could easily be shown.

This coincided with the introduction by Bill Gates's Microsoft company of power point presentations.

This technology revolutionised the way lectures are presented.

However it has taken a while for pathologists,

particularly those of my vintage

to master these new technologies and the computer skills that they require.

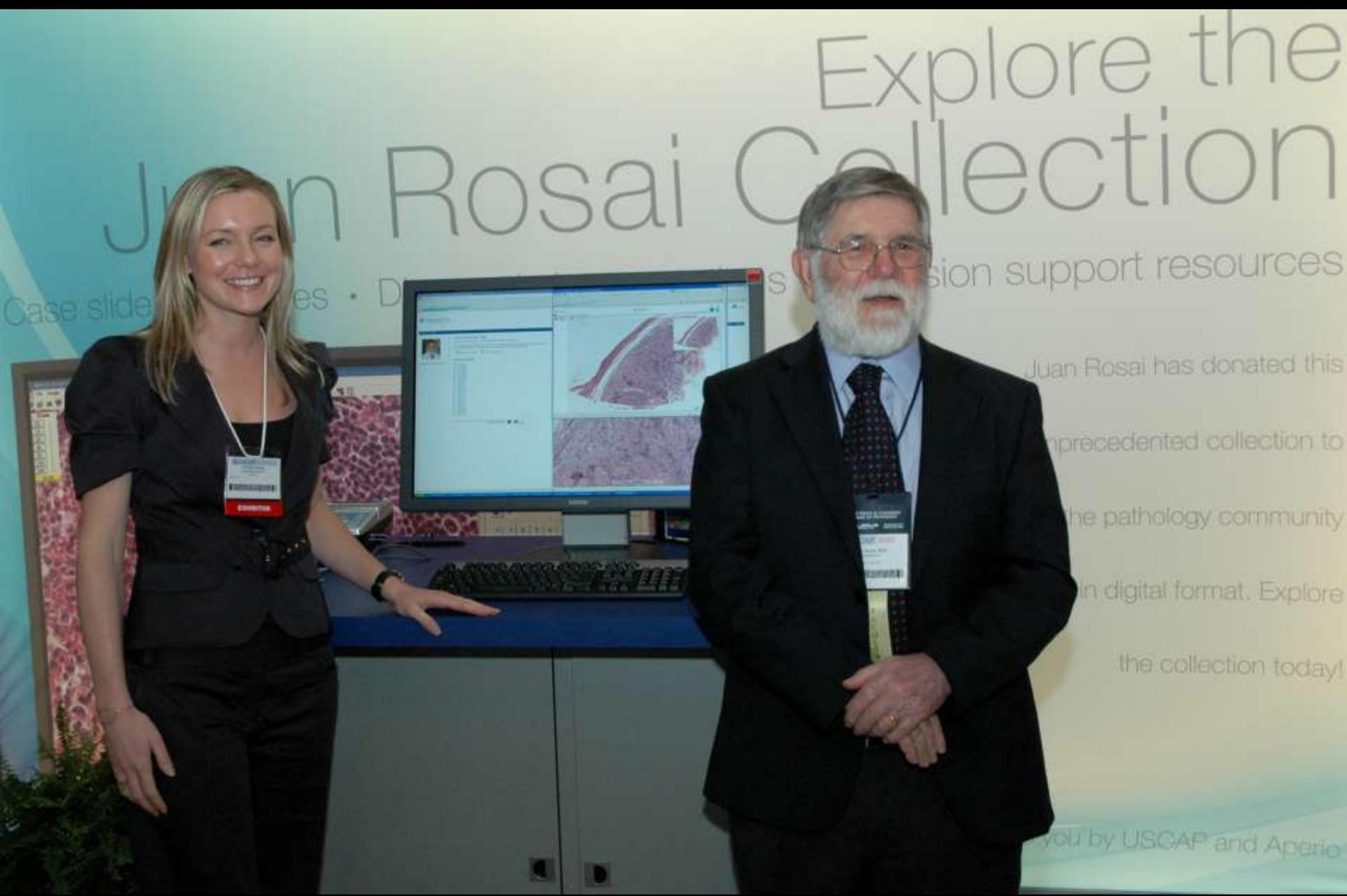
Now the problem was to make 'virtual slides' that would be convenient to use and would be accepted by pathologists.

Many methods were tried.

Whole slide scanning took a few years to master.

There are about 7 companies that are now selling whole slide scanners.

The Aperio company is probably the current leader in the field.



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Here is another method of presenting slide seminars that I trialled at the International Congress of the IAP in 2004.

The slides were photographed using fixed images and distributed on a CD.

Handout books were made with the text printed in a flowing style.

Mike Wells and Jaime Prat who are attending this conference participated in the trial project at the International Congress in Brisbane in 2004.



Mike Wells

Jaime Prat

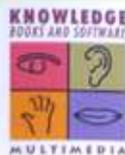
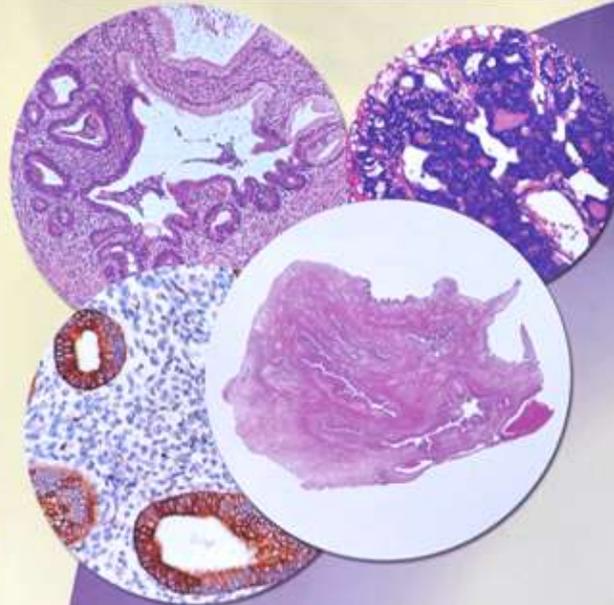
XXV International
Congress of the
International Academy
of Pathology
Slide Seminar



Gynaecological Pathology

International Society of
Gynaecological Pathology

Convenors: Richard Jaworski, Philip B. Clement
Series editor: Robin A. Cooke



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Handout book
front and back
covers are in
full colour

but because of
cost the text is
in black and white

Gynaecological Pathology

Gynaecological Pathology includes 12 cases to be presented as a slide seminar at the 25th International Congress of the IAP, Brisbane, Australia, 2004.

Convenors: Philip B. Clement and Richard Jaworski

Series editor: Robin A. Cooke

CASE 1: A 38-year-old female presented with a pelvic mass. *Philip B. Clement*

CASE 2: A 54-year-old female was found to have a right adnexal mass. *Philip B. Clement*

CASE 3: A 50-year-old Tongan female presented with a history of painless abdominal swelling for two months. *Richard Jaworski*

CASE 4: A 28-year-old female presented with an abnormal pap smear. *Richard Jaworski*

CASE 5: A 46-year-old Chinese female presented with menorrhagia due to fibroids. *Inny Busmanis*

CASE 6: A 52-year-old female Chinese presented with menorrhagia due to fibroids. *Inny Busmanis*

CASE 7: A term baby delivered in Noumea weighed 3.6 kg. There were no known problems in the newborn period. The placenta weighed 780 gm and was described as 'nodular' and pale. *Peter Russell*

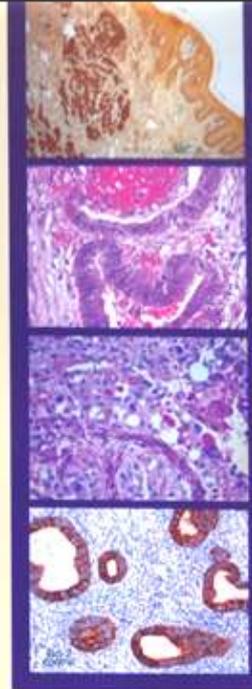
CASE 8: A 31-year-old female had a hysterectomy for intractable menorrhagia. *Peter Russell*

CASE 9: A 50-year-old female presented with abdominal pain and a 60 mm smooth surfaced, solid, right ovarian mass. *Nicholas Mulvany*

CASE 10: A 72-year-old woman presented with lethargy and abdominal distension. *Kerryn Ireland-Jenkin*

CASE 11: A 57-year-old female presented with postmenopausal bleeding. *Michael Wells*

CASE 12: A 20-year-old female presented with a right labial mass. *Michael Wells*



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Knowledge Books and Software,

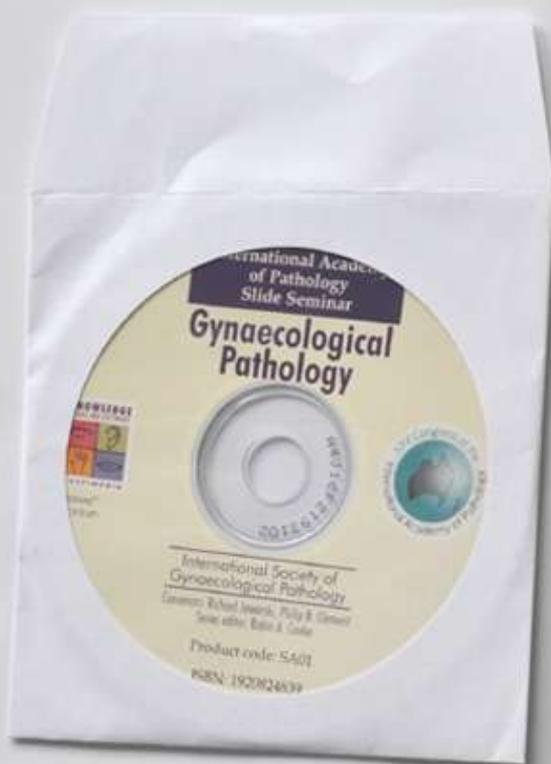
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Back cover

Mike Wells
Case 12

Note that the
immunostains
can be seen



GYNAECOLOGICAL PATHOLOGY

International Society of Gynaecological Pathology

Slide Convenors

Richard Jaworski and Philip B. Clement

Contributors

- Philip B. Clement
Vancouver Hospital and Health Sciences Centre, Vancouver, Canada
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Singapore General Hospital, Singapore
- Peter Russell
Mayne Lavery Pathology, Sydney, Australia
- Nicholas Mulvany
Melbourne Pathology, Melbourne, Australia
- Kerryn Ireland-Jenkin
Melbourne Pathology, Melbourne, Australia
- Michael Wells
University of Sheffield, Sheffield, England

Series Editor

Robin A. Cooke



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All the cases fit easily on a CD which can be filed inside the handout book

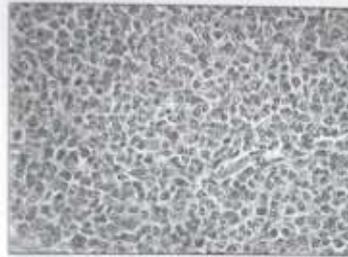


Figure 11

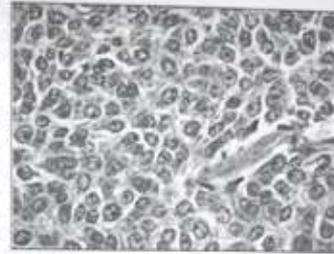


Figure 12



Figure 13

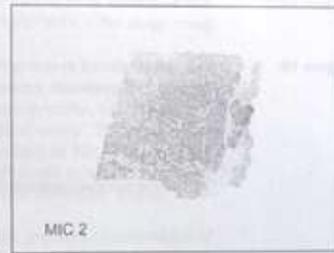


Figure 14



Figure 15

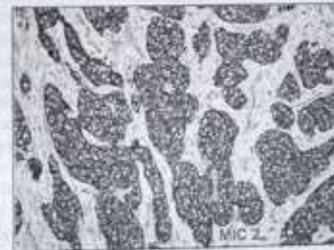


Figure 16

Figure 11 shows a high magnification view of a tissue section, likely a histological slide, showing a dense population of cells with a granular appearance. Figure 12 shows a similar high magnification view of a tissue section, showing a dense population of cells with a granular appearance. Figure 13 shows a low magnification view of a tissue section, showing a dense population of cells with a granular appearance. Figure 14 shows a low magnification view of a tissue section, showing a dense population of cells with a granular appearance. Figure 15 shows a high magnification view of a tissue section, showing a dense population of cells with a granular appearance. Figure 16 shows a high magnification view of a tissue section, showing a dense population of cells with a granular appearance.

For the congress the printing was in black and white

The only indication that some of the images are immunostains is the label on the 'glass slide'.

Each case starts with a computer generated glass slide

Followed by a low mag view of the whole section.

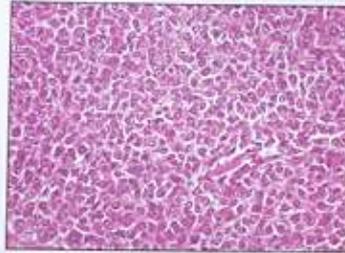


Figure 11

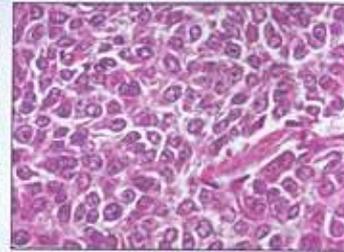


Figure 12



Figure 13

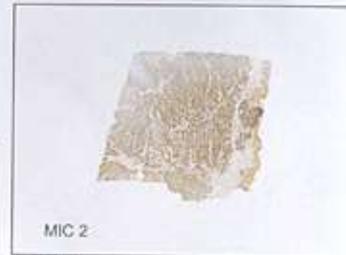


Figure 14



Figure 15

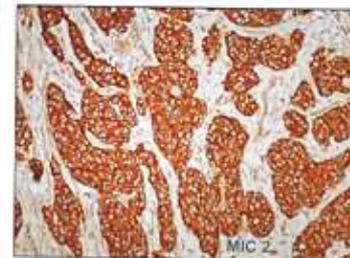


Figure 16

After the congress I had some of the handout books printed in full colour to see how they would look.

Pathology is a visual subject.

We need colour to show H&E and immuno-stains.

Gynaecological Pathology

Gynaecological Pathology is made up of 10 cases which will be presented as a slide seminar at the 25th International Congress of the IAP in Brisbane, Australia October 2004.

Convenors: Glenn McCluggage

Series editor: Robin A. Cooke

CASE 1: A 33-year-old female presented with an ovarian mass, found incidentally following a spontaneous abortion. *Glenn McCluggage*

CASE 2: A 69-year-old female presented with an ovarian tumor. The patient had a history of colon cancer resected one year earlier. *Jaime Prat*

CASE 3: A 32-year-old female presented with post-coital bleeding from a large friable cervical polyp. *John H. F. Smith*

CASE 4: A 50-year-old female presented with a left vulval mass. *Annie Cheung*

CASE 5: A 46-year-old female was admitted because of heavy vaginal bleeding. A D & C and polypectomy were performed. *Annie Cheung*

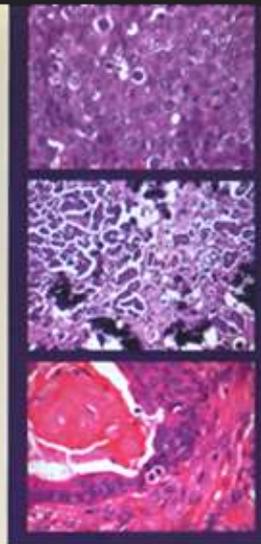
CASE 6: A 48-year-old female was found to have a large pelvic mass on routine gynecologic examination. The ovary was replaced by a 17 x 10 x 7 cm solid mass with a single peripheral 4 cm cystic area. *Esther Oliva*

CASE 7: A 63-year-old female underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy based on a clinical diagnosis of fibroids. *Esther Oliva*

CASE 8: A 45-year-old female was operated on for a large left ovary which weighed 497 gm. *Charles Zaloudek*

CASE 9: A 48-year-old female presented with a history of 'ovarian cancer' a year or two prior to the current surgery. There were several dense white areas 3-4 cm in length on the bowel serosa, with constriction of the bowel at the involved sites. *Charles Zaloudek*

CASE 10: A 47-year-old female presented with a pelvic mass and mild ascites. Laparotomy was performed and biopsies were taken from the right ovary and from nodules in the omentum and on the serosal surface of the colon. *Gordon Wright*



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Jaime Prat
presented
case 2 in
this seminar

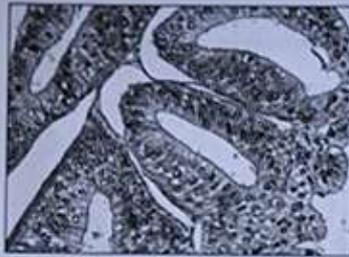


Figure 9

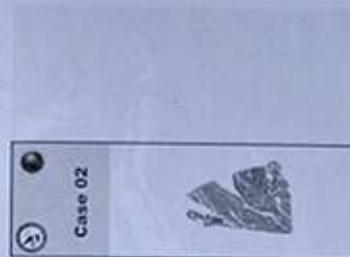


Figure 10



Figure 11

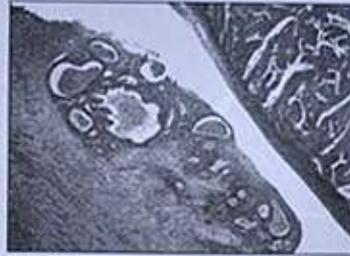


Figure 12



Figure 13

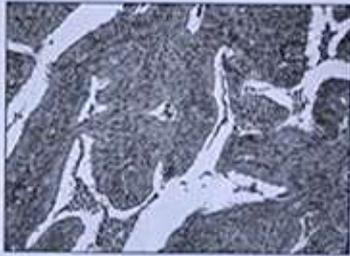


Figure 14

Figures 10 & 11: Slide and x1 of the right ovarian tumour resected one year later.

Figures 12 - 19: This tumour also shows a glandular architecture and is associated with endometriosis/adenofibroma.

It was printed in black and white

But would it not have been ever so much better in colour?

For the past 4 years all the major slide seminars for the Annual Meetings of the Australasian Division of the IAP have been presented with the cases recorded

as fixed images on a CD which includes histories and images

and accompanied by a handout book in full colour distributed at the meeting.