Continuing Education in Anatomical Pathology using digital images

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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.
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 S1 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 vulvar 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.
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
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.
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.
Handout book front and back covers are in full colour

but because of cost the text is in black and white
Note that the immunostains can be seen
All the cases fit easily on a CD which can be filed inside the handout book.
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.
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 immunostains.
Jaime Prat presented case 2 in this seminar.
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.