Glove puncture in the post mortem room

Weston and Locker document the high incidence of glove puncture in the post mortem room and advocate “frequent glove changes and hand washing throughout the post mortem examination.” An alternative is to wear thicker gloves which are less easily punctured. I have used for some time now Long Nitrosolve gloves (Marigold Industrial) over a standard pair of thin surgical gloves. The heavy gloves are resistant to puncture and also afford protection against splashes almost up to the elbow. They feel clumsy at first but one soon becomes used to them. They can be washed and reused several times and so are also economical.

R LINDLEY
Cellular Pathology, Pathology Laboratory, All Saints Hospital, Cheltenham, Kent ME4 8NG


Pathologists should be grateful for the data provided by Weston and Locker on the prevalence of glove punctures incurred during necropsies. But I worry about their conclusions.

They show an 8% prevalence of glove punctures across health care workers in the mortuary, and a 3-4 fold increased risk of puncture if a technician eviscerated the body compared with a pathologist. However, I think that more than “education... to promote awareness” is required. The suggested remedy—frequent changing of gloves during the procedure—is analogous to shutting stable doors after bolting horses.

The writers state that a small trial of double gloving was performed but that no significant protection was provided, without giving us the actual figures. Since 1989 I have performed more than 400 necropsies on HIV seropositive adults and children, always wearing two pairs of gloves: inner “surgical” gloves and outer, thicker household rubber gloves. Other pathologists regularly performing HIV seropositive necropsies with whom I have discussed the issue also favour such double gloving.

I have not rigorously tested my used gloves, but on the subjectively uncommon occasions when the outer glove was punctured, the inner glove appeared to have prevented any contamination of the skin. Given my prejudices, and the fact that most of my necropsy work is on infectious disease cases, I would now be unwilling to partake in a controlled comparative trial of single versus double gloving.

May I recommend discussion of the following proposals for necropsies:

1 Medicine and pathology have irrevocably changed since the HIV epidemic arrived: thus one should assume that every cadaver is potentially infected.
2 Universal precautions, involving the use of double gloves, impermeable disposable gowns, masks, hats, and eye protection, should be used during all necropsies. This applies to both technicians and pathologists.
3 We should move to minimise the chance of glove puncture by adopting non-pointed instruments; round-ended scissors are obvious, and non-pointed scalpel blades are available.
4 We should re-evaluate dissection procedures in the light of the questions being asked; for example, in HIV seropositive cases removal of the prostate does not usually produce further relevant information and could be omitted.

R S LUCAS
Department of Histopathology, University College and Middlesex School of Medicine, University Street, London WC1E 6JF

I read with interest the article by Weston and Locker regarding the frequency of glove puncture in the post mortem room. I am sure that few practising histopathologists could argue with their finding that glove punctures, both noticed and unnoticed, are extremely common, and a similar observation was made by Babb et al in 1989, although actual wounds are, in my experience, comparatively rare in experienced staff. This has undoubtedly always been the case in post mortem work and consequently, were it to pose a real rather than a potential health risk, there should be good evidence available. In their morbidity survey of post mortem room staff, Hall et al found no recorded days of absence for skin disorders or cuts and lacerations among pathologists and a very low number for technicians. Consequently, I would conclude that unnoticed glove puncture is not an important health hazard and would not justify the major expense incurred by using two pairs of gloves for each post mortem examination. It would appear from the available evidence that the risks associated with glove puncture are theoretical rather than real and do not justify multiple glove changes during necropsy examination. The potential for infection is adequately dealt with by normal post mortem room hygiene procedures.

PJ DUNN
Department of Pathology, Royal Infirmary, Castle Street, Worcester WR1 3AB

Diagnostic value of fibronectin determination in cerebrospinal fluid

Torre et al recently reported increased concentrations of fibronectin in the cerebrospinal fluid (CSF) of patients with bacterial meningitis, but not with viral meningitis, determined by a commercial turbidimetric immunosay. Their results correspond to our study on the differential diagnostic value of CSF fibronectin determination using an enzyme-linked immunosorbant assay, although their mean (SEM) control concentrations were somewhat higher (6.7 (1.3) mg/l as opposed to 3.3 (0.3) mg/l) and their mean concentrations in bacterial meningitis were far lower (13.9 (6.1) mg/l compared with 64.0 (6-3) mg/l in our study). Their observation of decreased fibronectin concentration (2-2 (1.8) mg/l) in viral meningitis is very interesting as we did not find any decrease in various neurological disorders including lumbar disk disease, multiple sclerosis, acute demyelinating polyradiculo-neuropathy, Guillain-Barré, neurologically asymptomatic HIV infection, tick-borne encephalitis, and diffuse leptomeningeal neoplasia. However, we detected very high concentrations of CSF fibronectin not only in bacterial meningitis but also in tick-borne encephalitis (26.7 (4.4) mg/l), neuroborreliosis (27.0 (3.0) mg/l), and notably in leptomeningeal neoplasia (58.4 (16.0) mg/l). Clinical data will help to distinguish infectious from neoplastic cerebrospinal disease in most patients but increased CSF
fibronectin concentrations will not contrib-
ute to the differential diagnosis in complicat-
ed clinical settings where definite proof by
positive CSF cytology should be sought.
However, a few cancer patients in our study
had a completely normal routine CSF exam-
ination including cytology, glucose, lactate,
albumin, IgG, and IgM, but they had increased
CSF fibronectin and later turned out to have
leptomeningeal metastases, as shown by cytology. Therefore, determination of
CSF fibronectin may be a useful diagnostic
and monitoring tool in the staging and follow
up of patients with disseminated cancer.

M WELLER
National Institutes of Health,
Clinical Neuroscience Branch,
Bethesda, MD
USA

Results over the past 12 months indicate
that the INRs have shown a consistent
improvement. The figure shows that the
mean INR for each patient group has pro-
gressively moved nearer to the mid point of
the therapeutic ranges—3.0–3.5 for the
range 3.0–4.5 and 2.5 for the range 2.0–3.0,
there being too few patients in the range
2.0–2.5 to analyse. The percentage of patients
within the therapeutic range each month for
these two groups has increased from 50% to
70% and from 48% to 65%, respectively.

As a result of the improved anticoagulant
control the average recall between visits
has also increased from 26 to 36 days and from
21 to 35 days for the two groups. The results
have been achieved without any apparent
increased risk of serious bleeding complica-
tions. All episodes of bleeding have been
recorded on each patient’s computer record
which allows the number of such episodes to
be monitored.

The use of this computer program for
determining the dose of oral anticoagulants
has improved our therapeutic control. The
clinic is now also run by a staff pharmacist
acting under the direction of a consultant
haematologist, thus freeing up medical
time.

Among other benefits which have ensued
is the improved advice given to new patients,
which is part of the program. This part of
the program consists of a series of questions
for all new patients. As directed by the
computer, the pharmacist will question the
patients to ensure that they know why they
have been given warfarin, the dose and
colour of their tablets, the side effects of
warfarin together with which drugs should be
avoided. This ensures that each patient is
fully counselled regarding their anticoagu-
tion. This program will allow comparisons of
performance to be made between centres.

Use of computers in anticoagulant
clinics

The guidelines on oral anticoagulation pub-
lished by the British Society for Haematology
(BSH) acknowledged that computers may
have a role in both the analysis of therapeutic
quality control and in the clerical support of
an anticoagulant clinic.1 Their use in the
production of dose schedules for individual
patients was not recommended until reliable
patient database programmes had been
developed.

Until August 1990 our anticoagulant clinic
had been performed by either a consultant
haematologist or a medical senior house
officer. Each patient had been allocated a
target International Normalised Ratio (INR)
range according to the BSH guidelines. In an
attempt to improve our anticoagulant control
we introduced a previously reported com-
puter programme for determining the dose of
oral anticoagulant.2

Audit of necropsies in a British district
general hospital

In response to the recent article about audit
of necropsies3 we were prompted to carry out
a retrospective study of the past 200 adult
necropsies performed at the Mayday Hospi-

Our criteria for grading diagnostic dis-
crepancies between the clinical cause of
death and the post mortem findings differed
from Harris and Blundell’s study, as we used
a single category for additional major pathol-
ogy without “feedback on tests” group.

The data were derived from the clinical and
necropsy diagnoses obtained from post
mortem request forms and necropsy reports.
The diagnoses were then independently
graded by three histopathologists (TPM,
MJC, and SMT) using up to three of the
criteria given below. The grades were then
compared and only those agreed by at least
two of the pathologists were accepted for
each case. Results were later presented at
the hospital clinical audit meeting (table).

The feedback from our study indicated
that necropsies have a central role in clinical
audit, yet despite this the necropsy rate
continues to fall in this era of audit.

Our study differs from that of Harris and
Blundell in several ways. Both studies never-
theless emphasise the significant discrepancy
between clinical and necropsy diagnosis. This
discrepancy is sufficiently high to question
the use of mortality statistics as derived from
decision certificates in the distribution of medi-
cal resources.

Many clinicians still question the relevance
and validity of necropsy results. Our study,
however, shows that most necropsies provide
considerable information about the clinical,
terminal pathological process as well as
revealing important findings that may not
directly contribute to the cause of death.

The feedback from our study indicated
that a summary of the main post mortem
findings was desired by the clinicians even
more than a full necropsy report. Despite the
lack of resources in many hospitals it would
not be too difficult to improve our necropsies
by providing a summary of findings and a concise
necropsy report which would at least in part fulfil
the Intercollegiate Working Party’s recommenda-
tions on necropsy.

In conclusion, necropsies must be con-
considered as an essential part of clinical man-
agement and audit. Therefore, we actively
support the use of necropsy and encourage our
clinical colleagues in this matter. We also
feel that additional resources—for example a
secretarial and technical personnel—should be
provided so that the underresourced
pathology laboratories can provide the quan-
tity and quality of necropsies as laid out by
the Intercollegiate Working Party recom-
menations.

Table

<table>
<thead>
<tr>
<th>Findings</th>
<th>Harris and Blundell study</th>
<th>Mayday hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major discrepancy in diagnosis</td>
<td>13%</td>
<td>32%</td>
</tr>
<tr>
<td>Major unsuspected diagnosis</td>
<td>30%</td>
<td>46%</td>
</tr>
<tr>
<td>Important clarification in diagnosis</td>
<td>63%</td>
<td>38%</td>
</tr>
<tr>
<td>Confirms presence of main diagnosis</td>
<td>86%</td>
<td>60%</td>
</tr>
<tr>
<td>No contribution</td>
<td>2%</td>
<td>32%</td>
</tr>
<tr>
<td>Major additional pathology</td>
<td>51%</td>
<td>47%</td>
</tr>
</tbody>
</table>

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M Weller

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