Correspondence

TO THE EDITOR, Genitourinary Medicine

Criteria for undertaking lumbar puncture in the assessment of syphilis

Sir,
One of the most serious complications of untreated syphilis is neurosyphilis. As lumbar puncture is the only objective means of excluding neurosyphilis, it is important that reasonable criteria are set for its being undertaken. This is because, although the procedure is relatively safe, side effects, such as severe post lumbar puncture headache and chronic pain at the site, commonly occur, and patients are often reluctant to submit to the procedure.

At the sexually transmitted disease (STD) centre of this hospital we have routinely advised undertaking lumbar puncture for the following groups of patients who have had syphilis diagnosed: (A) those with primary or secondary syphilis, yielding positive reagin test results one year after completion of treatment; (B) those with late latent syphilis, yielding positive serological test results (at a titre of <1/4 to the Venereal Disease Research Laboratory (VDRL) test) that were stable over at least four weeks and who had no clinical evidence of primary or secondary syphilis; (C) those with reinfection or relapse; (D) those with neurological signs; (E) those being followed up after oral treatment with tetracycline, erythromycin or doxycycline; (F) those who had been treated with benzathine penicillin or benzathine, procaine, and potassium penicillin (Bicillin, Wyeth). Lumbar punctures undertaken at this clinic using the above criteria were recently reviewed, and the records of 482 patients examined. These records covered about four years from December 1979 to July 1983, and all records that could be located were included.

A “positive” lumbar puncture was recorded when the cerebrospinal fluid gave positive results to any one of the specific tests (fluorescent treponemal antibody absorbed (FTA-ABS), Treponema pallidum immobilisation (TPI), T pallidum haemagglutination (TPHA) or Reiter protein complement fixation (RPCF) tests). On this basis the overall positive yield was 5·9% (25 out of 424 lumbar punctures performed (table 1). In contrast, the number of defaulters (patients who agreed to submit to lumbar puncture but who failed to attend for the procedure) was considerably higher (58 out of 482). Defaulters often failed to return to the clinic and were completely lost to follow up. Such a high default rate emphasised the need for rational criteria for lumbar puncture.

Group A (with primary or secondary syphilis) gave the highest yield of positive results (12·5% (4/32)), although in such a small group the significance of this finding cannot be proved. As persistent reactive reagin tests are relatively rare in treated early syphilis in my experience, the findings in this group suggest that lumbar puncture was fully justified.

Group B (with late latent syphilis) was the largest, and results were positive in 6·2% (21/341) of those who underwent lumbar puncture. This group included a number of patients in whom specific tests gave positive results but reagin tests gave negative results. As I discuss later, a positive lumbar puncture was only found in this group when the patient’s VDRL test reaction was at least weakly positive.

Group C (with reinfection or relapse) included patients with clinical recurrences proved by dark ground microscopy and serological relapses (that is, a fourfold rise in VDRL titre). Not all had been serologically cured before their relapse. It was interesting, however, that patients in group A, who had not had a serological cure, gave a high yield of positive results, but no patients in group C gave positive results on lumbar puncture. The most likely explanation is that most patients in group C were reinfected and had not suffered relapses. It was also noted that this group also contained the highest percentage of defaulters. This, together with the nil yield of positive results, suggests that reinfection itself is probably not a justification for advising lumbar puncture.

Group D (those with neurological signs) was surprisingly small and contained only three patients during this period. The introduction of effective treatment for syphilis has resulted in a great decline in patients presenting with tertiary complications. Most are probably seen by neurologists rather than in a clinic for sexually transmitted diseases. No comment can be made about the yield of positive results in such a

<p>| TABLE 2 | Correlation of results of serological and cerebrospinal fluid tests in 424 patients |
|-----------------------------------------------|</p>
<table>
<thead>
<tr>
<th>VDRL test</th>
<th>TPI test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>Positive</td>
</tr>
<tr>
<td>Lumbar puncture performed (n = 424)</td>
<td>115</td>
</tr>
<tr>
<td>No (%) positive results (n = 25 (5·9))</td>
<td>0 (0)</td>
</tr>
<tr>
<td>VDRL = Venereal Disease Research Laboratory; TPI = Treponema pallidum immobilisation.</td>
<td></td>
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</tbody>
</table>

| TABLE 1 | Positive results to tests for syphilis on lumbar puncture in 424 patients |
|-----------------------------------------------|
| Patients fulfilling the following criteria:   |
| A | B | C | D | E | F | More than one | None |
|-----------------------------------------------|
| Lumbar puncture advised (n = 482)             | 36 | 384 | 45 | 3 | 18 | 85 | 106 | 11 |
| Defaulters (n = 58)                           | 4  | 43  | 10 | 0 | 2  | 9  | 16  | 0  |
| Lumbar puncture performed (n = 424)          | 32 | 341 | 35 | 3 | 16 | 76 | 90  | 11 |
| No (%) positive results (n = 25 (5·9))       | 4 (12·5) | 21 (6·2) | 0 (0) | 1 (33·3) | 0 (0) | 4 (5·3) | 6 | 1   |

A = primary or secondary syphilis; B = late latent syphilis; C = reinfection or relapse; D = neurological signs; E = oral treatment with tetracycline, erythromycin, or doxycycline; F = treatment with benzathine penicillin or benzathine, procaine, and potassium penicillin.

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small number of patients, but clearly lumbar puncture is fully warranted in a patient with a history of syphilis and neurological signs.

Group E (those followed up after oral treatment) included patients treated with: tetracycline HCL 500 mg four times daily, erythromycin stearate 500 mg four times daily, or, more recently, doxycycline 200 mg daily for 17 days to treat early syphilis and for 30 days to treat late syphilis. It was reassuring that there were no positive results on lumbar puncture in this group of 16 patients.

Group F (patients treated with benzathine penicillin or benzathine, procaine, and potassium penicillin) was a unique group of patients selected for lumbar puncture (presenting mostly from 1979 to 1981) after concern had been expressed in published reports that treatment with these drugs did not provide treponemical levels of penicillin in cerebrospinal fluid.1-3 Regimens at this clinic before 1978 had been: benzathine penicillin 1·8 g in weekly injections for three weeks to treat early syphilis and for five weeks to treat late syphilis; or benzathine penicillin 450 mg, procaine penicillin 300 mg, and potassium penicillin G 187 mg (Bicillin all purpose injection, Wyeth) in seven injections of 1·2 MU at twice weekly intervals. In this group of patients lumbar puncture was performed before treatment, and four out of 76 (5·3%) gave positive results, which was similar to the overall average in this report. Such a finding is reassuring.

The results of serological tests before lumbar puncture were also reviewed (table II). No patient with a negative result to the VDRL test (115 patients) or with a negative result to the TPI test (35 patients) had a positive result on lumbar puncture. It seems safe to conclude that a negative VDRL test result, especially if associated with a negative TPI test result, is unlikely to yield a positive lumbar puncture result. I therefore concluded that lumbar puncture was unlikely to be justified in the absence of positive reagin serology.

In conclusion, the results of this report confirm that lumbar puncture should be offered to the following patients: (i) those with primary or secondary syphilis yielding positive reagin test results one year after completion of treatment; (ii) those with serology test results consistent with late latent syphilis, with at least a weakly positive result to the VDRL test; and (iii) those with neurological signs.

Yours sincerely,

P Harper

STD Clinic,
Sydney Hospital,
Sydney 2000, Australia

References


TO THE EDITOR, Genitourinary Medicine

Gonococcal pelvic inflammatory disease, oral contraceptives, and cervical mucus

Sir,

Studies have shown a lower incidence of pelvic inflammatory disease (PID) particularly PID due to Neisseria gonorrhoeae, in women taking oral contraceptives.1 It had been suggested that this might be due to a change in menstrual flow or in cervical mucus, either of which might be hostile to N gonorrhoeae.

To test the second hypothesis, we examined the occurrence of cervical gonococcal infection in women whose only sexual partner had contracted gonococcal urethritis from another partner. We examined the medical records of such women from two years, 1979 and 1982. Two groups were extracted: women using oral contraceptives and women using no contraceptives. We compared the two groups for a variety of factors, such as parity, age, marital state, and race, and found no difference between the two groups. When we looked at the number of patients in each group who had positive cultures for N gonorrhoeae, from the cervix, we found no appreciable differences (see table).

TABLE Gonococcal cervicitis and contraceptive technique in 1979 and 1982

<table>
<thead>
<tr>
<th>Contraception</th>
<th>1979</th>
<th>1982</th>
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<tbody>
<tr>
<td>Oral</td>
<td>20/52 (38·5)</td>
<td>48/73 (64·0)</td>
</tr>
<tr>
<td>None</td>
<td>11/27 (41·0)</td>
<td>22/34 (64·7)</td>
</tr>
<tr>
<td>Total</td>
<td>31/79 (39·2)</td>
<td>70/109 (64·2)</td>
</tr>
</tbody>
</table>

We therefore conclude that, although protection against PID by oral contraception has been shown, this seems not to be mediated by a change in cervical mucus.

Your faithfully,

Malcolm Griffiths
David Hindley

Academic Department of Genitourinary Medicine,
The Middlesex Hospital Medical School,
London W1

References


TO THE EDITOR, Genitourinary Medicine

Sexual behaviour of women with human papillomavirus lesions of the uterine cervix

Sir,

In their paper on the sexual behaviour of women with human papillomavirus (HPV) lesions of the uterine cervix, Syrjanen et al (British Journal of Venerial Diseases 1984; 60:243-8) claimed that their data showed the dramatic influence of sexual behaviour on the transmission of cervical HPV lesions. May I suggest that their control group was inadequately defined, poorly matched, and not randomly selected.

No mention was made of the marital status of women in either group until late in the discussion, when the control subjects were noted to be mostly married; it seems fair to assume, therefore, that the patients with HPV were mostly unmarried. The control group was also said to be a randomly selected series of women who had normal Pap smears, but how can randomised selection have been achieved in view of the requirement for a normal Pap smear and the need for response (rate not given) to a mailed questionnaire?

Surely the control subjects were selected for normal cervical cytology and positive response to mailing. This seems also to have resulted in selection for married state and the implication that p values for this must be highly significant. If the controls were effectively selected for monogamy as well as absence of HPV infection of the cervix, then the findings in Tables II-V became inevitable.

Yours faithfully,

B A Evans

Department of Genitourinary Medicine,
West London Hospital,
London W6 7DQ
Criteria for undertaking lumbar puncture in the assessment of syphilis.

P Harper

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