Review

The diagnosis of oropharyngeal gonorrhoea

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Much of the published work on gonococcal infection of the throat dates from the seventies and early eighties, a period during which the incidence of gonorrhoea in the Western world was significantly greater than today.

Epidemiology

There is general agreement that oropharyngeal infection occurs most frequently in homosexual men, followed by women and heterosexual men. The table gives comparative prevalences from four studies of patients with gonorrhoea.

Weisner *et al*⁴ found the oropharyngeal isolation rate of neisseria species from his population was: *N meningitidis* 17.2%; *N gonorrhoeae* 5.6% and *N lactamica* 1.9%.

Young and Bain⁵ noted that, of gram-negative diplococci cultured, 74.2% were *N meningitidis*, 20.3% *N gonorrhoeae* and 3.7% *N lactamica*.

Diagnosis

No standard method has been agreed for sampling the oropharynx and it is therefore difficult to compare the prevalence of oropharyngeal gonococcal infection between different studies. In their pioneering article in 1973, Bro-Jorgensen and Jensen were not only the first to recommend routine cultures from the oropharynx of patients with gonorrhoea, but described a thorough technique worth following: "... avoiding wetting the swab with saliva, swabs were rubbed against the surface of the tonsils, inserted into the crypts and the spaces between the palatine arches and the tonsils and finally rolled over the posterior pharynx".² There are no published studies on the value or otherwise of multiple sampling from the oropharynx, as there are for other sites.

Microscopy of samples from the oropharynx is unhelpful in the diagnosis or exclusion of gonorrhoea because of the presence of other neisseria species. Laboratory culture is therefore necessary with further differentiation between different neisseriae, simple carbohydrate utilisation tests having been largely superseded by commercial immunological tests based on monoclonal antibodies and, if necessary, biochemical tests. Recent work by

Young and co-workers¹ suggests a significant superiority for direct gene-probing compared with other current tests, provided that culture-negative specimens are confirmed by a probe competition assay.

Fellatio is probably a more efficient mode of transmission than cunnilingus. There is anecdotal evidence of transmission to the throat by anilingus and a suggestion that it might be transmitted by kissing alone.³

There is some evidence that *N meningitidis* is isolated more often from the throats of patients who are also harbouring *N gonorrhoeae*. Odegaard and Gedde-Dahl⁹ reported their co-isolation from the throats of 26% of 112 patients compared with 11% isolation of *N meningitidis* from patients with anogenital gonorrhoea alone. Young *et al*,¹⁰ in a study of over 3000 patients, found *N gonorrhoeae* 2.7% and 1.8 times more frequently, in men and women respectively, who were carrying *N meningitidis*, when compared with those who were not. The authors hypothesised that, rather than individual susceptibility, the findings might simply reflect the greater number of sexual partners in those who acquire gonorrhoea, with transmission of *N meningitidis* by kissing. If this were so, one might also find greater carriage of "... 'marker' organisms such as *Streptococcus pyogenes* and *haemophilus influenzae*".

Clinical aspects

Oropharyngeal infection by the gonococcus is not characterised by a typical appearance and is more often than not unproductive of symptoms.^{2 7 11 12} Orogenital sex was denied by 15 of 42 patients with positive throat cultures reported by Osborne and Grubin,¹³ all of whom admitted its occurrence at further interview.

Some epidemiological and clinical importance attaches to oropharyngeal gonorrhoea. Infection at this site may occasionally be the source of disseminated disease^{2 14 15 16} and can certainly be a source of urethral gonorrhoea following fellatio, regarded by many as "safe" from the HIV standpoint. If such an infected individual then has unprotected anal intercourse with his HIV-negative regular partner, rectal gonorrhoea may follow, giving the impression that "unsafe" (from the presumed HIV standpoint) sex has taken place at the initial encounter.

It is recommended that oropharyngeal cultures for *N gonorrhoeae* be taken routinely from patients who may have been exposed to gonorrhoea, whether or not they give a history of

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Comparative prevalences of oropharyngeal gonorrhoea

Source (n)	Women, % +ve	Het men, % +ve	H/s men, % +ve
Weisner ⁴ (2224)	10.3%	3.2%	20.9%
Young ⁵ (3557)	7.9%	3.3%	11.0%
Sulaiman ⁶ (547)	6.8%	4.2%	27.3%
Sherrard ⁷ (1749)	N/A	2.7%	18.5%

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orogenital sexual contact. In view of the apparent lack of sensitivity of the sampling process and the reduced eradication of infection with many standard single dose treatment regimens,¹⁷ it is advisable to repeat cultures from the oropharynx during routine tests of cure. It should be remembered that this site is one where spontaneous elimination of the gonococcus has been demonstrated, eighteen patients being consistently culture negative at twelve weeks without treatment.¹⁸

Future work on oropharyngeal gonorrhoea could usefully assess techniques of sampling. Studies of prevalence in different populations, or on the relative efficacy of alternative antibiotic regimens, will remain difficult to compare without a standardised, agreed method.

- 1 Young H, Anderson J, Moyes A, McMillan A. Non-cultural detection of rectal and pharyngeal gonorrhoea by the Gen-Probe PACE 2 Assay. *Genitourin Med* 1997;73: 59–62.
- 2 Bro-Jorgensen A, Jensen T. Gonococcal pharyngeal infections. Report of 110 cases. *Br J Venereal Dis* 1973;49: 491–9.
- 3 Willmot FE. Transfer of gonococcal pharyngitis by kissing? *Br J Venereal Dis* 1974;50:317–8.
- 4 Weisner PJ, Tronca E, Bonin P, Pederson AMB, Holmes KK. Gonococcal pharyngeal infection. *Clin Obstet Gynecol* 1973;18:121–9.
- 5 Young H, Bain SS. Neisserial colonisation of the pharynx. *Br J Venereal Dis* 1983;59:228–31.
- 6 Sulaiman MZ, Bates CM, Bittiner JB, Dixon CA, Slack RCB. Response of pharyngeal gonorrhoea to single dose penicillin treatment. *Genitourin Med* 1987;63:92–4.
- 7 Sherrard J, Barlow D. Gonorrhoea in men—clinical and diagnostic aspects. *Genitourin Med* 1996;72:422–6.
- 8 Sherrard J, Barlow D. Gonorrhoea in homosexual men in London. *AIDS* 1996;10:236–7.
- 9 Odegaard K, Gedde-Dahl TW. Frequency of simultaneous carriage of *Neisseria gonorrhoeae* and *Neisseria meningitidis*. *Br J Venereal Dis* 1979;55:334–5.
- 10 Young H, Harris AB, Robertson DH. Individual susceptibility to neisserial infection? *Br J Venereal Dis* 1979; 55:188–90.
- 11 Chacko MR, Phillips S, Jacobson MS. Screening for pharyngeal gonorrhoea in the urban teenager. *Pediatrics* 1982;70:620–3.
- 12 Sherrard J, Barlow D. Gonorrhoea in men. *Lancet* 1993; 341:245.
- 13 Osborne NG, Grubin L. Colonisation of the pharynx with *Neisseria gonorrhoeae*: experience in a clinic for sexually transmitted diseases. *Sex Trans Dis* 1979;6:253–6.
- 14 Weisner PJ, Tronca E, Bonin P, Pederson AMB, Holmes KK. Clinical spectrum of pharyngeal gonococcal infection. *N Engl J Med* 1973;288:181–5.
- 15 Cramolini GM. The pharynx as the only positive culture site in an adolescent with disseminated gonorrhoea. *J Paediatr Child Health* 1982;100:644–6.
- 16 Yavelow SL, Wiznia A, Brennessel DJ, Glaser JH. Disseminated gonorrhoea from a pharyngeal infection in a pre-pubertal child. *Int J Pediatr Otorh* 1984;7:297–300.
- 17 Moran JS. Treating uncomplicated *Neisseria gonorrhoeae* infections: is the anatomical site of infection important? *Sex Transm Dis* 1995;22:39–47.
- 18 Wallin J, Siegel MS. Pharyngeal *Neisseria gonorrhoeae*: coloniser or pathogen? *BMJ* 1979;1:1462–3.