SHORT ARTICLES

HAEMOPHILUS INFLUENZAE INFECTIONS OF THE GENITAL TRACT

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HAEMOPHILUS INFLUENZAE causes a wide spectrum of acute pyogenic lesions. These are most commonly due to capsulate type-b strains in young children, and no infections of the genital tract were recorded by Turk and May (1967) in their review of the pathogenicity of this species. More recently, Skirrow and Prakash (1970) described a case of tubo-ovarian abscess caused by *H. influenzae*, and Hurley (1970) reported a case of endometritis associated with haemophilus infection of an intra-uterine contraceptive loop. Non-capsulate strains of *H. influenzae* were responsible in both.

Four cases of puerperal infection caused by *H. influenzae* have also been reported. In two, the organism was isolated from the blood of the newborn infants, the infection originating from maternal amnionitis in each case (Ingman, 1970); one strain was type b, but typing of the other was not performed. In two cases described by Ellner and Shahidi (1969), maternal blood cultures taken soon after delivery yielded *H. influenzae*; a type-f strain was obtained from a patient with suspected endometritis, and a non-capsulate strain from a patient with amnionitis and placentitis.

The present paper reports two genital tract infections caused by non-capsulate strains of *H. influenzae*.

CASE 1

Haemophilus vaginitis in a child

A 4-yr-old girl was brought to a hospital casualty department with a history of vaginal discharge and irritation for 4 days. The discharge was yellowish-white and had soiled the child's clothing. On examination, the vagina was inflamed and flecks of pus were present on the mucosa. There was no evidence of a local foreign body or other abnormality.

A Gram-film prepared from a vaginal swab showed many pus cells and small Gram-negative bacilli. On culture on horse blood agar, a profuse pure growth of *Haemophilus influenzae* was obtained. The organism was dependent on both X and V factors and was of typical morphology and antibiogram; it was non-capsulate.

The child was treated with ampicillin (125 mg 6-hourly), and her vaginitis resolved within 48 hr.

CASE 2

Fallopian tube abscess

A 35-yr-old woman was admitted to hospital with a history of abdominal pain of 5 days' duration. During the 1st day the pain had been felt in the centre of the abdomen, but had then moved to and settled in the right iliac fossa. The patient also complained of anorexia and nausea for 5 days, and felt hot and feverish. Her last menstrual period was normal, starting 11 days before admission and lasting 5 days. There were no other gastrointestinal and no urinary symptoms.

The patient had had an operation for sterilisation 7 yr before, when the fallopian tubes were crushed and ligated. The indication for this procedure was Rhesus incompatibility, which had resulted in intra-uterine deaths in her third and fourth pregnancies.

On the present occasion a mass was felt on examination in the right iliac fossa with marked tenderness and rebound tenderness. The tongue was heavily furred and the urine contained ketones. The patient's temperature was 37°C; the white blood cell count was

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11,800 per μ l (polymorphs 67 per cent., lymphocytes 26 per cent., monocytes 7 per cent.), and the erythrocyte sedimentation rate was 27 mm in 1 hr.

Laparotomy was performed and an abscess of the right fallopian tube was found extruding pus into the peritoneal cavity. The appendix and ovaries appeared normal. The tubal abscess and appendix were excised. Examination of the fallopian tube showed pus in the lumen and in the wall, with overlying fibrinous adhesions. The appendix was not inflamed, but there was overlying peritonitis associated with the tubal abscess.

A Gram-film of a swab taken from the abscess at operation showed many pus cells and Gram-negative bacilli. On culture, a profuse pure growth of *Haemophilus influenzae* was obtained. The organism was dependent on both X and V factors and was typical in morphology and antibiotic sensitivity pattern. It was non-capsulate.

The patient was treated with 250 mg of ampicillin and 250 mg of cloxacillin ("Ampiclox", Beecham) 6-hourly for 5 days. She made an uneventful recovery and was discharged home after 12 days.

DISCUSSION

Non-capsulate *Haemophilus influenzae* is a potential pathogen of mucous membranes, commonly associated with infections in the bronchi, sinuses, and conjunctivae; usually a predisposing abnormality is present. The present cases indicate that the mucous membranes of the genital tract may also be vulnerable, and that *H. influenzae* should be considered when purulent material from gynaecological patients is examined.

H. influenzae occurs occasionally in the commensal flora of the vagina (Hardy, 1941; Hurley, 1970), and this is the likely source of infection in the genital tract. The bloodstream is readily invaded by type-b haemophilus strains, but it is exceptional for bacteraemia to occur with non-capsulate strains. *H. influenzae* spreads along the mucous membranes of the respiratory tract, and it seems that a direct ascending route of infection is more probable than a haematogenous route in cases of infection of the genital tract.

H. influenzae is much less commonly found in the genital tract than in the respiratory tract, but its behaviour as a pathogen in the various sites may be similar in requiring some predisposing factor. The vagina is generally more susceptible to infection before the menarche, but vaginitis caused by *H. influenzae* does not appear to have been reported previously. The patient reported by Skirrow and Prakash (1970), with a haemophilus tubo-ovarian abscess, had a history of peritonitis in childhood; her subsequently childless marriage suggested that there may have been some tubal scarring and this may have enabled the organism to establish infection. In case 2, there was certainly pre-existing tissue damage resulting from the sterilisation operation.

SUMMARY

A case of acute vaginitis and a case of acute pyosalpinx were caused by non-capsulate strains of *Haemophilus influenzae*. The possible route of infection of the genital tract by *H. influenzae* and aspects of tissue susceptibility are discussed.

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