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The clinical outcome of 137 rape victims in Hong Kong

香港137位強姦受害人的臨床結果

From 1 August 2001 to 31 July 2004, 137 patients were referred from the Association Concerning Sexual Violence Against Women to the Accident and Emergency Department at the Kwong Wah Hospital for alleged rape. Approximately half of the patients presented within 3 days of the alleged assault. Fifty-one patients were prescribed emergency contraception: one patient remained pregnant despite treatment and was referred with a further six patients to the Gynaecology Department for termination of pregnancy. Thirty-two patients received hepatitis B immunoglobulin injection. One patient had a positive result for rapid plasma reagin 3 months following the assault and was referred to the Social Hygiene Clinic. All tests for antibody to human immunodeficiency virus were negative. Antimicrobial therapy was prescribed for women who had an endocervical and/or high vaginal swab positive for *Chlamydia trachomatis* (n=9), *Trichomonas vaginalis* (n=1), and gonococcus (n=1).

由2001年8月1日至2004年7月31日，共有137位聲稱強姦受害者由關注婦女性暴力協會轉介至廣華醫院急症室。接近一半的病人在事發後3天內求診。其中51人服食緊急避孕藥，當中一人依然懷孕。她及另外六位病人被轉介至婦科接受終止懷孕手術。32位病人接受乙型肝炎免疫球蛋白注射。一位病人在事發3個月後快速血漿反應素測試中呈陽性反應，她被轉介至社會衛生科。所有病人免疫缺陷病毒抗體測試均呈陰性反應。9位病人的子宮頸內拭子培養了衣原體，一位病人的拭子培養了陰道滴蟲，另外一位病人的拭子培養了淋球菌；她們都接受了抗菌治療。

Key words:

Contraceptives, postcoital;
Pregnancy, unwanted;
Rape;
Sexually transmitted diseases;
Violence

關鍵詞：

事後避孕；
不希望有的懷孕；
強姦；
性傳播疾病；
暴力

Hong Kong Med J 2005;11:391-6

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Introduction

Violence is a major public health care issue that has a significant impact on the physical and mental health of people. Doctors working in the Accident and Emergency Department often treat patients who are the victims of assault, although few are victims of rape.¹ This is largely because rape victims do not willingly present to such a department, but not because rape is rare.² Medical staff may consequently be unfamiliar with the specific problems faced by rape victims.¹

In addition to physical and emotional trauma, rape can result in pregnancy and/or sexually transmitted diseases, consequences not as apparent as those associated with common assault. Delayed presentation is not unusual as victims often hesitate to seek medical help or report the offence to the police. They fear the consequences of an unwanted pregnancy and sexually transmitted diseases and may take unnecessary risks such as seeking an illegal abortion.³

The Rape Crisis Centre under the Association Concerning Sexual Violence Against Women was established in August 2001 to work in

Table 1. Management given in each visit

Management	First attendance	10-14 days after the incident	6 weeks after the incident	3 months after the incident	6 months after the incident
Emergency contraception	√				
Testing for rapid plasma reagin	√		√	√	
Testing for hepatitis B surface antigen and antibody to the hepatitis B surface antigen	√				
Saving serum	√				
Giving hepatitis B immunoglobulin	√				
Giving hepatitis B vaccine	√		√		√
Endocervical, high vaginal, and urethral swabs with or without rectal swab, throat swab		√			
Testing for human immunodeficiency virus antibody			√	√	√

Table 2. Treatment for specific sexually transmitted diseases*

Microorganism	Routine treatment	Alternative treatment for pregnant or breast-feeding patient
<i>Chlamydia trachomatis</i>	Azithromycin 1 g PO stat	Erythromycin 500 mg BD for 14 days
<i>Neisseria gonorrhoeae</i>	Cefixime 400 mg PO stat	Ceftriaxone 250 mg IM stat
<i>Trichomonas vaginalis</i>	Metronidazole 2 g PO stat	Metronidazole 2 g PO stat after the first trimester

* PO stat denotes oral administration taken immediately, BD twice daily, and IM intramuscular

conjunction with the Accident and Emergency Department of the Kwong Wah Hospital in an attempt to address some of these issues. It aims to provide comprehensive care to women who are the victims of alleged rape and other sexual violence. Victims can avoid the need to contact the police or hospital but can instead approach a social worker at the Centre. All social workers at the Centre are female and trained in the counselling and care of rape victims. Should the victim choose to report the crime to the police, a social worker is able to accompany them to the scene of the rape as required for either clinical or legal reasons.

Medical care for rape victims is provided principally by the Accident and Emergency Department of the Kwong Wah Hospital. Emergency contraception, as well as prevention, screening, and treatment of sexually transmitted diseases are provided. To ensure privacy, a separate room in the department is allocated for consultation and, whenever possible, a female doctor attends the patient.

The protocol

When a rape victim presents within 72 hours of an alleged assault, emergency postcoital contraception is prescribed. Blood tests are performed for rapid plasma reagin, hepatitis B surface antigen and antibody testing,

and a serum sample is saved. Hepatitis B immunoglobulin is administered and hepatitis B vaccination commenced if test results are negative. Vaginal examination, including urethral, high vaginal and endocervical swabs, is deferred for 10 to 14 days unless the patient is already symptomatic of infection. An endocervical swab is cultured for chlamydia. Blood tests for rapid plasma reagin are repeated after a further 6 weeks and 3 months. Blood tests for human immunodeficiency virus (HIV) antibodies are performed at the same time and additionally after 6 months. If the 6-week test is positive, saved serum is tested for HIV antibodies. A summary of the management given in each visit is shown in Table 1. Treatment for specific sexually transmitted diseases is shown in Table 2.

Age of victims

The age of victims ranged from 13 to 82 years (median, 22 years). The number of patients in each range of a half decade is shown in Table 3. Rape occurred most often in women aged 16 to 20 years followed by 21 to 25 years, figures that are similar to those reported in the United States.⁴

Time of presentation and chief complaint

Time of presentation varied with nine (6.6%) patients

Table 3. Age of patients with alleged rape

Age range (years)	Patients No. (%)
11-15	12 (8.8)
16-20	45 (32.8)
21-25	40 (29.2)
26-30	18 (13.1)
31-35	7 (5.1)
36-40	7 (5.1)
41-45	4 (2.9)
46-50	0
51-55	2 (1.5)
56-60	0
61-65	1 (0.7)
66-70	0
71-75	0
76-80	0
81-85	1 (0.7)

presenting on the day of alleged rape and 24 (17.5%), 25 (18.2%), and 8 (5.8%) presenting 1, 2, and 3 days later, respectively. A total of 48% of patients thus presented within 3 days of the incident. Two patients presented with vaginal bleeding (one had a vaginal tear) 1 day after the incident and were admitted to the Gynaecology Department. Two patients were admitted 11 days after the event with symptoms of pelvic inflammatory disease. Late presentations were not uncommon: 10 (7.3%) patients presented more than 2 months after the alleged rape. Four were pregnant, with gestational age ranging from 10 to 22 weeks. Three presented with vaginal discharge and/or pruritus vulvae. One presented with persistent headache and dizziness 4 months after the alleged rape. One patient presented with emotional problems 16 months after the incident. One patient was a victim of sexual abuse. An approximate distribution of the time of presentation of rape victims is depicted in Fig 1.

Attendance

A significant proportion of victims were lost to

follow-up (Fig 2). Follow-up also gradually declined with time. Four victims left Hong Kong after the incident but planned to continue medical care in their homeland. One patient was followed up in a government clinic under the Child Protection Act. Four patients refused further blood tests and were discharged. Less than half (40%, 55/137) completed follow-up care.

Emergency contraception and outcome

Eugynon (Schering AG, Berlin, Germany) 2 tablets 12 hours apart for 2 doses were prescribed to patients who presented within 72 hours of unprotected intercourse. Promethazine 25 mg was given 1 hour before Eugynon to reduce the side-effects of nausea and vomiting. After July 2003, Eugynon was replaced by oral levonorgestrel 750 µg (oral administration [PO]) 2 doses 12 hours apart as it more effectively prevents pregnancy.⁵

Emergency contraception was provided to 51 of the 66 patients who presented within 3 days of the alleged rape. One patient vomited 3 hours after the second dose of contraception; she was not pregnant. No other side-effects were reported. Patients already using contraception such as an intrauterine contraceptive device, long-acting contraceptive injection, or oral contraceptive pills did not require emergency contraception. Patients also received emergency contraception from private doctors, other emergency departments, family planning association clinics, gynaecology ward, or self-prescribed from a pharmacy. One patient, aged 51 years, was postmenopausal.

Of the 51 patients who received emergency contraception, 40 were not pregnant. Nine patients defaulted from follow-up and had no medical consultation after their expected date of next menstruation. One patient had follow-up in a government clinic

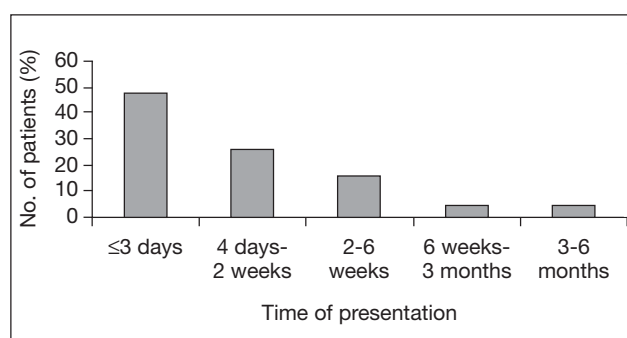


Fig 1. Approximate distribution of the time of presentation after alleged rape

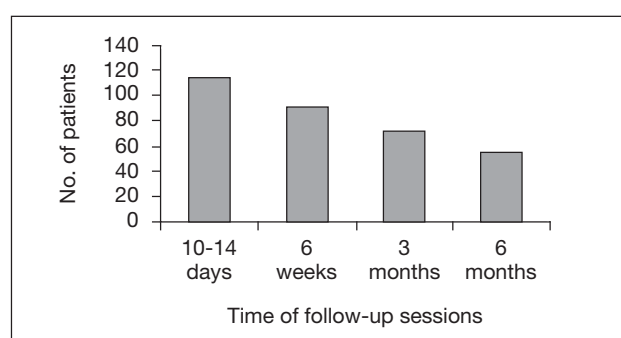


Fig 2. Number of patients attending follow-up at specified times after alleged rape

arranged under the Child Protection Act. Presence or absence of pregnancy therefore could not be verified. One patient presented 48 hours after the alleged rape and received emergency contraception but was found to be pregnant 2 weeks later. She elected to undergo termination of pregnancy: suction evacuation was performed when the gestational age, dated by ultrasound, was 11 weeks. This corresponded with the date of alleged rape. The success rate of emergency contraception, excluding those whose results were unknown, was 97.6%.

One patient presented 4 days after the alleged rape. An initial pregnancy test was negative but became positive at follow-up 11 days later. She was referred to the Gynaecology Department and termination of pregnancy was performed.

Eight patients were pregnant at the first medical consultation with gestational age ranging from 5 to 22 weeks. All were referred to the Gynaecology Department. Five underwent termination of pregnancy. Two patients, who were 20 and 22 weeks pregnant on presentation respectively, continued their pregnancy to full term. One baby was adopted and the other defaulted from follow-up so the outcome is unknown.

Hepatitis B

Blood tests on hepatitis B surface antigen and antibody were performed in 123 patients. Three patients had positive test results for hepatitis B surface antigen. The positive results were obtained 2 days after the alleged rape in two patients and 16 days after the incident for another patient. Hepatitis B surface antibodies were present in 56 of the 64 patients who had neither antigen nor antibody, 32 were given hepatitis B immunoglobulin. This was not given to the other patients because of their late presentation. A full course of hepatitis B vaccination was given to 26 patients. The remaining patients defaulted from further follow-up, thus vaccination status was unknown.

Syphilis

All tests for rapid plasma reagin were negative except one that was positive 3 months after the incident. The patient was asymptomatic and was referred to the Social Hygiene Clinic for further management. A total of 72 patients had negative serology 3 months after the alleged assault. The positive rate was 1.4%.

Acquired immunodeficiency syndrome

All blood tests for HIV remained negative at the time of writing. A total of 55 patients had negative serology 6 months after the alleged assault.

Chlamydia trachomatis, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis*

Vaginal speculum examination was performed in 115 patients. Urethral, high vaginal, and endocervical swabs were taken. In addition, endocervical swabs were sent for culture of chlamydia. Rectal swabs were taken from 15 patients who reported anal sex. Two patients who reported oral sex had throat swabs taken.

Chlamydia trachomatis

Of the 115 swabs sent for the culture of *Chlamydia*, nine (7.8%) were positive. One swab was taken 2 days after the alleged rape and may therefore have represented pre-existing infection. The other swabs were taken 12 to 68 days after the incidents. Six patients were asymptomatic and two patients reported vaginal discharge. Another patient had pruritus vulvae and vaginal discharge on presentation, 15 days after the alleged assault. In addition to *Chlamydia*, *Candida* and *Streptococcus* were also present in the high vaginal and endocervical swabs. Azithromycin 1 g PO was given to eight patients. Erythromycin 500 mg twice daily for 14 days was given to another patient who was pregnant. No side-effects were reported.

Neisseria gonorrhoeae

Urethral, high vaginal, and endocervical swabs taken from one patient 12 days after the alleged rape were positive for gonococcus. The patient complained of pain and vaginal discharge and was prescribed cefixime 400 mg PO. The positive rate was 0.9%.

Trichomonas vaginalis

Trichomonas vaginalis was present in the endocervical and high vaginal swabs taken 18 days after the alleged rape in one patient. The same swabs taken 16 days earlier had been negative. The patient had pruritus vulvae and copious yellowish vaginal discharge was found in the second speculum examination. Metronidazole 2 g PO was given. The positive rate was 0.9%.

A summary of the results of screening for sexually transmitted diseases is listed in Table 4.

Discussion

Rape is a crime that continues to be surrounded by

Table 4. Results of screening tests for sexually transmitted diseases

Sexually transmitted disease	No. of patients with positive test results (symptomatic/asymptomatic)	No. of days after alleged rape of specimen collection (No. of patients)	Positive rate for completed screening tests
Hepatitis B	3 (0/3)	2 (2), 16 (1)	2.4%
Syphilis	1 (0/1)	93 (1)	1.4%
AIDS	0	-	0
Chlamydial infection	9 (3/6)	2 (1), 12-68 (8)	7.8%
Gonorrhoea	1 (1/0)	12 (1)	0.9%
Trichomoniasis	1 (1/0)	18 (1)	0.9%

controversy. Classically it is considered a crime of violence to a woman committed by a stranger, with associated injuries to other parts of the body. Nonetheless, recent data supplied by the police and elsewhere reveal that approximately 80% of victims know their assailant.⁶ Such victims are far less likely to report the sexual assault to police or seek medical care.² Unfortunately this does not preclude the presence of consequent physical or psychological problems and many women present later with an unwanted pregnancy, complications of sexually transmitted diseases, or emotional disturbances.

The data from this study reveal the problems well established for rape victims: late presentation and poor attendance for follow-up care.⁷ In this study, late presentation was associated with complications such as pregnancy, symptoms of sexually transmitted diseases, headache, and psychological problems. Presentation of more than 3 days after the assault renders emergency contraception ineffective and further delay makes termination of pregnancy risky. Early treatment of sexually transmitted diseases is essential to halt spread and prevent the development of complications. Some diseases have a long incubation period. If the patient who had a positive test result for rapid plasma reagin at 3 months' follow-up had not attended that appointment, the diagnosis of syphilis may have been missed until she presented much later with secondary or tertiary forms of the infection.

A recent survey of an emergency department population revealed three principal reasons why rape victims hesitate to seek medical care: not wanting friends or family to find out (64%), embarrassment (60%), and the view that medical care is unnecessary (52%).² If women are better informed about the significant risk of pregnancy (4.7% of rapes resulted in pregnancy), perhaps more would seek the requisite medical care.⁸ They should also be aware that sexually transmitted diseases can be asymptomatic and may have a long incubation period.

With the exception of chlamydia, the positive rate of sexually transmitted diseases was low. Although there are exceptions to the rule, it is difficult to determine whether these diseases were pre-existing or acquired as a result of the sexual assault. In the victim with *Trichomonas* cultured in the second batch of swabs, infection was most likely a result of the alleged rape. For another victim, the initial test results for rapid plasma reagin were negative but became positive 3 months after the sexual assault.

Infection may not be immediately apparent after the incident and vaginal examination is a procedure that may be perceived by the victim to mimic rape. Thus screening for sexually transmitted diseases by means of vaginal examination is deferred until 10 to 14 days after the incident, unless symptoms are already present. It is not the aim of this service to investigate how disease is acquired, but only to establish its presence or absence.

Our protocol was developed with the advice given by the Social Hygiene Clinic of the Department of Health of Hong Kong, as local disease prevalence and drug susceptibilities may differ to those elsewhere. Treatment for sexually transmitted diseases was prescribed only when test results were positive. An exception was made for two rape victims who planned to leave Hong Kong the next day: hepatitis B immunoglobulin, azithromycin, cefixime, and metronidazole were given. Many experts recommend that routine preventive therapy should be prescribed for all victims of sexual assault.⁹ Others suggest that treatment be reserved for women who are symptomatic of infection, who are unlikely to attend follow-up, or who request it.¹⁰ Yet many patients with sexually transmitted diseases are asymptomatic and screening tests are not foolproof. When these facts are considered together with the data showing poor follow-up, there may be a strong case for prescribing prophylactic treatment. Nonetheless, with the exception of chlamydial infection, the positive rates for sexually

transmitted diseases were low in this study. Treatment is also associated with adverse reactions. One solution may be to allow more flexibility so that management can be tailored according to individual circumstances.

The service provided by the Centre is also open to abuse. One patient revealed that she had voluntary intercourse at her home with an acquaintance known through the internet despite her mother's allegations that she had been raped. Another patient claimed she had been raped by a stranger 3 months before presentation after consuming too much alcohol although she was 22 weeks' pregnant at presentation. Further inquiry revealed that she had her first sexual experience with her boyfriend 5 months before presentation.

The last two cases nonetheless account for a very small minority and women reporting rape should not be judged accordingly. Regardless of the occurrence or not of sexual assault, medical care is still needed. Many rape victims persist in not seeking any help.¹¹ Early presentation is preferable so that appropriate interventions can be planned. It would be even better if rape could be prevented. Rape is a premeditated crime, associated with the use of drugs or alcohol, and based on the victim's availability, not her behaviour or style of dress.^{6,12} Since the majority of rape victims are adolescents and women in their early twenties, education at secondary schools and colleges on the prevention of rape as a crime may help to reduce the magnitude of this problem. Efforts should also be made to improve the availability and accessibility of medical services that provide medical evaluation, counselling, postcoital contraception, pregnancy termination services, or appropriate prenatal care as desired after rape.¹³

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