dealing with complications. It is the most appropriate method for non-specialists outside large, well-equipped hospitals.

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Requests for reprints should be addressed to S.D.M.

REFERENCES

1. Green CP. Voluntary sterilization: world's leading contraceptive method. *Popul Rep* [C] 1978; **2:** 37–70.
2. Lubell I. Report by its executive director on the work of the Association of Voluntary Sterilization. Presentation for the staff of the International Fertility Research Program in Research Triangle Park, North Carolina, May, 1980.
3. Steptoe PC. Laparoscopy in gynaecology. Edinburgh: Livingstone, 1967.
4. Wheeless CR. A rapid, inexpensive and effective method of surgical sterilization by laparoscopy. *J Reprod Med* 1969; **5:** 65–69.
5. Uchida H. Uchida sterilization in family planning. In: Hudono ST, Saifuddin AB, eds. Proceedings of the Fifth Asian Congress of Obstetrics and Gynecology, Djakarta, Indonesia, 1971; 157–8.
6. Duncan GW, Falb RD, Speidel JJ, eds. Female sterilization: prognosis for simplified outpatient procedures. New York: Academic Press, 1972.
7. Hulka JF, Mercer JP, Fishburne JL et al. Spring clip sterilization: One year follow-up of 1,079 cases. *Am J Obstet Gynecol* 1976; **152:** 1039.
8. Yoon IB, Wheeless CR Jr, King TM. A preliminary report on a new laparoscope sterilization approach: the silicone rubberband technique. *Am J Obstet Gynecol* 1974; **120:** 132.
9. Vitoon O. Suprapubic minilaparotomy, uterine elevation technique: simple, inexpensive and outpatient procedure for interval female sterilization. *Contraception* 1974; **10:** 251–62.
10. Madrigal V, Goldsmith A. A new technique for outpatient female sterilization *IPPF Med Bull* 1975; **9:** 4.
11. Dassenaike AGS, McCann MF, Saha A. Female sterilization via minilaparotomy *J Reprod Med* 1976; **17:** 119–24.
12. Laufe LE. Minilaparotomy: new developments in a proven technique. In: Holtrop HR, Waife RS, Bustamente W, Rizo A, eds. New developments in fertility regulation a conference for Latin American physicians. Chestnut Hill, Massachusetts Pathfinder Fund, 1976: 163–68.
13. Apelo R, Ramos R, Pachauri S, McCann MF. Experience with minilaparotomy in the Philippines. *Int J Gynæcol Obstet* 1978; **15:** 325–30
14. Speidel JJ, McCann MF. Minilaparotomy: a fertility control technique of increasing importance. *Adv Plann Parent* 1978; **13:** 42–57.
15. Phillips JM. Acknowledgement and preface In: Speidel JJ, McCann MF Minilaparotomy: a fertility control technique of increasing importance *Adv Plann Parent* 1978; **13:** iv–vii.
16. Penfield AJ, Klippinger R.K. Under normal circumstances, minilaparotomy may be preferable to laparoscopic tubal sterilization. In: Phillips JM, ed. Endoscopy in gynecology Downey, CA: American Association of Gynecologic Laparoscopists, 1978: 447–49.
17. Ravenholt RT, Wiley AT, Glenn DN, Speidel JJ. The use of surgical laparoscopy for fertility management overseas. In: Phillips JM, ed. Endoscopy in gynecology Downey, CA: American Association of Gynecologic Laparoscopists, 1978 223
18. Poliakoff SR, Yoon IB, King TM. A four-year experience with the Yoon ring In Phillips JM, ed. Endoscopy in gynecology. Downey, CA: American Association of Gynecologic Laparoscopists, 1978, 197–208.
19. Kamheang C. The use of the laparoscope in rural Thailand. *Int J Gynæcol Obstet* (in press).

Medicine and the Law

CYCLICAL CRIMINAL ACTS IN PREMENSTRUAL SYNDROME

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Summary 3 women successfully pleaded diminished responsibility or mitigation due to premenstrual syndrome in crimes of manslaughter, arson, and assault. All had long histories of repeated misdemeanours, which continued while in prison. Police and prison records confirmed the diagnosis of premenstrual syndrome. The women were successfully treated with progesterone, and their behaviour returned to normal.

INTRODUCTION

IN three recent court cases severe premenstrual syndrome was accepted as a contributing factor in crimes of manslaughter, arson, and assault. In France, premenstrual syndrome is recognised as a cause of temporary insanity.[1] Police and prison reports of these 3 women with histories of repeated criminal acts revealed a recurrence of offences at monthly intervals, suggesting an imbalance of menstrual hormones which would respond to progesterone treatment.

CASE REPORTS

Case 1

A 28-year-old nulliparous worker in the food industry, who has had epilepsy from infancy until the age 14, was in custody on a charge of manslaughter. Her menarche was at the age of 15, and since the age of 16 she has received twenty-six convictions; offences included causing criminal damage, theft, trespassing, writing threatening letters, possessing a dangerous weapon, and, finally, a fatal stabbing. While in detention her episodes of disturbed behaviour included arson; attempted escape, hanging, strangling, and drowning; smashing windows; cutting her wrists; and assault.

Analysis of the dates of bizarre behaviour showed that an average cycle length of 29·55 days ±1·45 days could be fitted in between episodes of violence while in prison (fig. 1) and an average cycle length of 29·04 days ±1·47 days could be fitted in between prison admissions (fig.2).

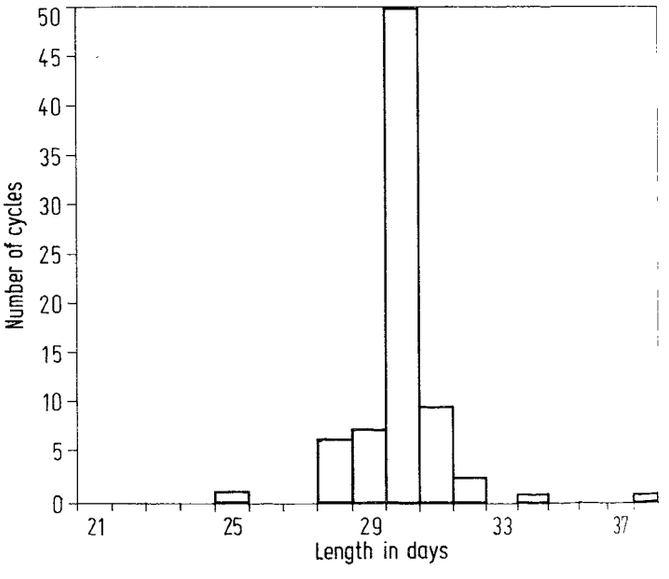

Fig. 1—Distribution of "fitted" cycles between episodes of violence in prison.

The patient said she became confused and suddenly angry, with a longing for alcohol during the last two premenstrual days. A psychiatrist reported: "Most of the time she is pleasant and cooperative but at times she loses her senses and can be quite impulsive". She was receiving 'Ativan' (lorazepam) 5 mg thrice daily. Treatment with injections of progesterone 50 mg intramuscularly daily cured her irritability and confusion but she remained depressed premenstrually. For the past 9 months she has received 100 mg progesterone daily and no other drugs; she has become calm, rational, and is able to concentrate. There have been no more episodes of disturbed behaviour and she is now on probation for 3 years.

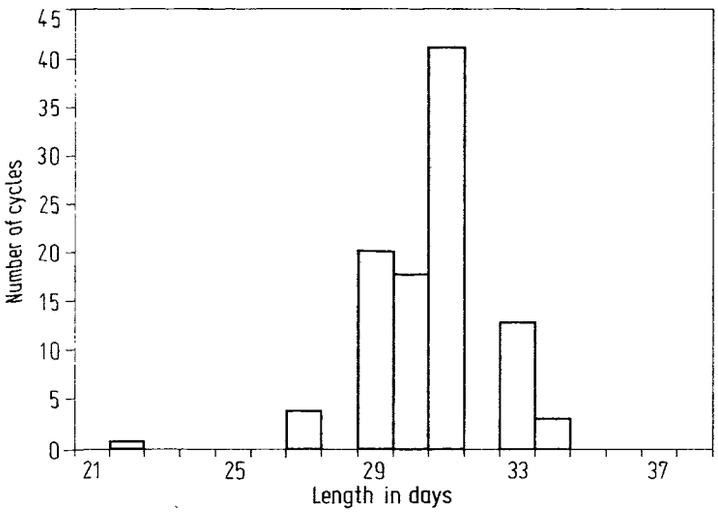

Fig. 2—Distribution of "fitted" cycles between prison admissions.

Case 2

An 18-year-old nulliparous student, whose menarche was at 13 years, had no behaviour problems until she was 14½ years old when she made her first suicide attempt. The next year her parents noticed several episodes of bizarre behaviour, which were always during the paramenstruum; these included swallowing weedkiller, running away from home, shaving her head and eyebrows, cutting her face, and alcohol intoxication. She set fire to her home and was sent to prison where, during the next three paramenstruums, she attempted arson, cut her wrists, and tried to strangle herself. Treatment with dydrogesterone 10 mg twice daily eased her premenstrual tension but not the premenstrual depression or violence. She was then given progesterone injections 100 mg daily from mid-cycle until menstruation and had no further episodes of bizarre behaviour. She was freed on probation for 2 years and has had excellent health on progesterone. She now has a full-time managerial job, is married, and has had no further episodes of disturbed behaviour in the past 22 months.

Case 3

A 19-year-old unemployed nulliparous woman had her menarche at the age of 16. The next year she began to display criminal behaviour at monthly intervals for which she was initially given probation, later Borstal training, and then prison sentences, but offences continued even during detention. Offences during the last 2 premenstrual days and first 2 days of menstruation included making false 999 calls, criminal damage, assaults on police, hanging attempts, arson, threats to kill her grandmother, and slashed wrists. She said that during premenstrual days she became irritable, depressed, violent, and felt like "walking out of life". She claimed she had often asked for help during the paramenstruum when she felt a sudden urge to jump out of the window or assault someone. This was confirmed by a prison officer's statement which said: "feels she will smash up. Doesn't want to leave prison", and a report from Borstal which said: "she sometimes asked to be put in a cell alone as she felt safe there".

Monthly episodes of bizarre behaviour continued despite fortnightly injections of flupenthixol 20 mg, chlorpromazine 50 mg thrice daily, and orphenadrine 50 mg twice daily. Daily injections of progesterone 50 mg from midcycle to menstruation were started and her other treatment was gradually stopped. She lost her violent urges and felt calmer.

On release from prison her injections were, unfortunately, not resumed for 7 days during which she committed another offence. She was taken into custody and 3 weeks later she alerted the staff at the hostel that she felt violent. The next day, before injections could be obtained, she threw a knife at a man, escaped from the hostel, made a false 999 call, and assaulted 3 policewomen. She started to menstruate that night in the police cell. She received a 2 year prison sentence during which her unpredictable episodes of violence in the paramenstruum were again noticed. 5 months later she resumed progesterone therapy, and she has been well behaved for the last 4 months in prison.

DIAGNOSIS

These 3 women all had recurrences of criminal behaviour related to menstruation. This behaviour had begun during the year after menarche. All had a happy, secure, family background with no family history of crime. All were nulliparous non-hirsute women and were living at home; none could recall the date of their last menstruation and none had any bloatedness, weight-gain, breast tenderness, or headaches. They each acted alone and detention did not deter them from further episodes of misbehaviour. Diagnosis depended on the cyclical relationship of their crimes as recorded in the police and prison records.

TREATMENT

Successful treatment was with natural progesterone (not synthetic progestogens) and initially the injections were given by a nurse, although case 2 became stable and learned to inject herself. The women were taught to recognise the early signs of menstrual disturbance and allowed to use extra progesterone suppositories 400 mg when necessary. Overdosage by the rectal or vaginal route is not possible. Other drugs were continued for the first cycle, then gradually reduced and discontinued. The women were advised to avoid oral contraception and warned that they would be unduly sensitive to alcohol and long intervals without food. A period of probation is a wise precaution to ensure the safe transition from custody to freedom and to enable the women to become stable and fully understand the need for continuous treatment.

DISCUSSION

The aetiology of premenstrual syndrome is still in doubt. It was diagnosed in these 3 women on the basis of episodes of bizarre behaviour recurring in the premenstruum or early in menstruation with complete absence of symptoms post menstruum.[2] We must remain suspicious of women who plead that premenstrual syndrome is a reason for mitigation or diminished responsibility; good diagnostic proof is still necessary.

This study shows another aspect of premenstrual syndrome and the necessity for the general practitioner to be able to diagnose and treat this condition. The cost of keeping one woman in prison is £105.00 per week. The cost of progesterone treatment is a mere fraction of that sum .

I am indebted to Ian Clarke for statistical analysis of episodes and admissions in case 1, to the prison authorities for permission to examine the three prisoners' notes, and to the medical officers at Holloway prison who supervised treatment while the patients were in their care.

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REFERENCES

1. Oleck HL. Legal aspects of premenstrual tension. *Int Rec Med Gen Pract Clin* 1953; **166:** 492–501.
2. Dalton K. Premenstrual syndrome and progesterone therapy. London: Heinemann Medical Books, 1977, page 3