submucous fibroids,² the title is nevertheless misleading.

We have two, more serious concerns. Only 12% of the patients randomised to hysterectomy underwent vaginal hysterectomy, which is a low figure, considering the indications for surgery. Vaginal hysterectomy has a lower morbidity than abdominal hysterectomy; patients have a reduced need for postoperative analgesia and are discharged home earlier.³ The most appropriate comparison for a treatment designed primarily for dysfunctional uterine bleeding must be vaginal hysterectomy. The use of abdominal hysterectomy increases the chance of a type I error being made in favour of the conservative procedure when it comes to factors such as duration of stay in hospital and recovery.

Our second concern relates to the high failure rate of endometrial ablation in the study, with 28 of 96 patients randomised to endometrial ablation requiring retreatment (n=11) or a hysterectomy (n=17) within one year. This figure is considerably higher than that in most published series from centres reporting on 100 or more patients^{2,4} and is higher than the failure rate for endometrial resection in our hospital after five years.⁵ We performed total endometrial resection on 527 patients over five years. Only 18% of these patients required repeat ablation or hysterectomy, or both, during the first five years. Lifetable analysis shows that the need for repeat surgery peaks during the first two years after endometrial ablation. Given that 29% of the women in Pinion and colleagues' study required repeat surgery at one year, we wonder how many more will develop symptoms in the subsequent years. The high failure rate after conservative surgery increases the chance of type II statistical error in favour of hysterectomy when long term success and patients' satisfaction are considered.

Prospective randomised studies continue to be the best way to assess new treatment strategies, and this study is a potentially valuable addition to our knowledge. We have to be careful, however, that the comparison is appropriate and that the best of the old is compared with the best of the new.

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Vaginal hysterectomy is a certain cure

EDITOR,—S B Pinion and colleagues' study comparing endometrial resection and hysterectomy largely ignores the benefits of vaginal hysterectomy.¹ The authors conclude that "hysteroscopic surgery can be recommended as an alternative to hysterectomy for dysfunctional uterine bleeding" despite the finding that 28 of 105 patients required a second operation and that the proportion of

patients who were "less than very satisfied" in the hysteroscopic group (22%) was double that in the hysterectomy group (11%).

In a retrospective audit in our hospital (1989-92) 231 consecutive women complaining of menorrhagia that had been refractory to medical treatment were offered hysterectomy. Women who required surgery for prolapse were excluded, and the surgery was performed by a single consultant firm. Of the 231 women, 157 (68%) had a vaginal hysterectomy (in Pinion and colleagues' study vaginal hysterectomy was performed in only 12 (12%) of 99 cases). In our series 74 patients underwent abdominal hysterectomy, and 62 had a well recognised contraindication to the vaginal route (uterine cavity > 10 cm (33); adnexal disease (18); prophylactic oophorectomy (five); previous caesarean section (five); coincident bladder neck procedure (one)). Vaginal hysterectomy was not performed in 12 of the women in whom no such contraindication was found in the case notes. Vaginal hysterectomy was converted to the abdominal route during surgery in only one case.

Of the 157 vaginal hysterectomies, 69 were done by a consultant, six by a senior registrar, 60 by a registrar, and 22 by a senior house officer. Thus this series does not reflect the personal experience of one surgeon. It does show that junior staff may be taught vaginal hysterectomy without undue difficulty; in contrast, there is a considerable learning curve for endometrial resection. The average length of stay was 4.1 nights for vaginal hysterectomy and 5.0 nights for abdominal hysterectomy, compared with 7.3 nights for all hysterectomies in Pinion and colleagues' study. Complication rates were similar regardless of the route of hysterectomy in our series. Since 1992 the usual stay after vaginal hysterectomy has been three nights, and previous caesarean section is no longer considered to be a contraindication to vaginal hysterectomy.

Vaginal hysterectomy offers the benefits of a certain cure for dysfunctional bleeding, and large studies have shown a quicker recovery and fewer complications after it than after abdominal hysterectomy.² Endometrial resection, with its known substantial failure rate, has not been shown to be an attractive alternative to vaginal hysterectomy, which we believe is the preferred treatment in most cases.

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Establish severity of blood loss and psychological status before surgery

EDITOR,—In the paper on their trial of hysterectomy, endometrial ablation, and endometrial resection for dysfunctional uterine bleeding S B Pinion and colleagues do not say how they assessed depression.¹ They do, however, report extremely high levels of depression before surgery, which, despite falling afterwards, remained significantly raised. These findings are in keeping with the likelihood that a complicated relation exists between emotional problems and dysfunctional uterine bleeding.^{2,3} For example, if a woman is

suffering from uncomfortable and unusually heavy menstrual blood loss it is easy to see why she might feel miserable and will feel much better after successful surgery. Psychological distress may also alter a woman's perception of her periods or her help seeking behaviour. The criteria used in this study to define clinical dysfunctional uterine bleeding are unclear. The diagnosis seems to have been based on detailed histories of menstrual blood loss; this approach has been shown to be unsatisfactory. When this loss is measured objectively it is poorly predicted by several of the criteria that the authors list: days of bleeding,⁴ amount of menstrual protection used,⁵ and women's subjective reports of loss.⁶ While we accept that the routine measurement of blood loss may not be practical, independent measures such as haemoglobin concentrations can be useful to identify iron deficiency anaemia.⁷

As removal of the endometrium is relatively simple, cheap, and safe it is likely to replace hysterectomy as the first line surgical treatment for dysfunctional uterine bleeding. For these reasons it is also likely that more women who complain of heavy periods will be offered surgical intervention (other than dilatation and curettage). Although this might well be a step forward for women who require surgery, an increasing number of women may be subjected to surgery on the basis of an unverified complaint, which could well be psychological in nature.

We therefore suggest that particular attention should be paid to establishing the severity of blood loss and the psychological status of a woman before she is offered surgery for dysfunctional uterine bleeding. This should include not only taking a detailed history of complaints but also paying attention to the way in which the woman describes her symptoms, since spontaneous descriptions of severe blood loss (such as "it was embarrassing; the blood poured down my legs at the supermarket") are particularly convincing.³ Moreover, simple psychiatric screening is easily available and can provide helpful information in this group of women. Whatever the relation between dysfunctional uterine bleeding and emotional disorder, awareness of a woman's psychological status is useful when deciding on surgery, preparing for operation, and providing high quality aftercare.

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Follow up survey in Taunton shows high level of satisfaction

EDITOR,—S B Pinion and colleagues show that hysteroscopic surgery is associated with high levels of satisfaction among patients.¹ We recently wrote to 217 women who had had endometrial resections

in our hospital between 1990 and 1993 and obtained similar findings; in addition we found that the satisfaction was maintained during over three years of follow up.

A total of 223 women underwent endometrial resection. Five required an intraoperative hysterectomy, and the remaining 217 women were sent a questionnaire last September. Altogether 204 (94%) women replied. The mean follow up time was 25.1 months (range 9-44 months). Sixty six women had been amenorrhoeic since surgery, and a further 94 described their menstrual loss as light.

We found a high degree of satisfaction associated with this operation, with 154 women describing it as having been a lot of help and a further 29 women as having been of some help. Only 21 women thought that the operation had been of no help. This benefit seemed to be sustained with prolonged follow up. Among the 31 women followed up for between 31 and 36 months 27 described the operation as having been a lot of help. Even among the 21 women followed up for between 37 and 42 months 16 described the operation as having been a great help. Twenty women subsequently had a hysterectomy.

Like Pinion and colleagues, we found that preoperative dysmenorrhoea did not seem to affect subsequent satisfaction. We found, however, that younger women seemed to be less satisfied than older women. The proportion of women who said that the operation had been a lot of help was seven (41%) of the 17 aged under 34; 35 (57%) of the 61 aged 39 or under; 63 (83%) of the 76 aged 40-44; 42 (76%) of the 55 aged 45-49; and all of the 12 aged 50 and over. The proportion of women under 40 who subsequently had a hysterectomy was three times that of women aged 40 and over (11 (18%) of 61 v 9 (6%) of 143).

We believe that younger women should be warned that they may find endometrial resection less helpful than older women, although, given the well documented morbidity associated with hysterectomy, even in this group endometrial resection may have many advantages. Additionally, many younger women thought that the opportunity to choose their surgical treatment was important. Four fifths of our patients were in full or part time employment at the time of their operation, and many commented that they were too busy to consider a hysterectomy. Women are increasingly demanding alternatives to hysterectomy in the surgical treatment of menorrhagia, and, like Pinion and colleagues, we think that endometrial resection can be offered to women with dysfunctional uterine bleeding as a first line surgical treatment. They can be reassured that four out of five women find the operation helpful and that this high level of satisfaction is sustained, even with prolonged follow up.

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Authors' reply

EDITOR,—Anup Sharma and colleagues point out that serious complications may occur during hysteroscopic surgery. It was because of such anecdotal reports that we initiated our randomised trial. Pauli Kajanoja states that we disregarded the fact that 17 women underwent hysterectomy and 11 had a repeat hysteroscopic operation. On the contrary: analysis in randomised trials is based on

"intention to treat," so the recovery times reported include those for women having further treatment. The levels of satisfaction are those reported by the women themselves at 12 months, again independent of whether they had further treatment. A recent nationwide Scottish audit of hysteroscopic surgery reported similar low rates of complications and high levels of satisfaction.¹ There have been anecdotal reports of serious complications during laparoscopic hysterectomy. If this procedure is to replace traditional abdominal or vaginal hysterectomy for menorrhagia it must be assessed in a similarly rigorous manner.

The prevalence of urinary symptoms is known to be high. With regard to Julie Hotchkiss's comments, the preoperative symptom questionnaire was completed in the presence of a doctor whereas the postoperative questionnaires were completed by the patients on their own at home, and this accounts for the difference in definition of nocturia. Does C J Kelleher seriously think that we should screen the general population for urinary symptoms and advise surgical treatment, which may itself have serious complications? This makes no more sense than screening for menstrual problems, to which half of women admit.²

Hugh O'Connor and colleagues state that the title of our paper was misleading. The women had a clinical diagnosis of dysfunctional uterine bleeding. Many women at hysterectomy or hysteroscopy were found to have small fibroids, but in most cases this was a histological diagnosis that would not have altered their clinical management. The trial was designed to compare a new treatment with standard management, and the method of hysterectomy was not specified. At the time of the trial 80% of hysterectomies in Britain (not just Scotland) were performed abdominally. Since then, principally because of the new alternatives and trials such as ours, the best method of performing hysterectomy has been much debated and there has been a move towards vaginal hysterectomy, although to our knowledge no randomised trial of the two operations has been published.

The high failure rate in the group who had hysteroscopic surgery included women who could not be treated successfully by hysteroscopic surgery as a one step procedure as well as true failures of treatment. The rate would undoubtedly have been lower if the women had been preselected for hysteroscopic surgery as in previous reported series. Our trial more genuinely reflects the place of hysteroscopic surgery in clinical practice. We now have follow up data at two years, and the assumption that the failure rate continues to be high is wrong. In addition, the trial was carried out fairly soon after the introduction of hysteroscopic operations. This is reflected in current improved success rates in Aberdeen.

We stand by our recommendation that women should be offered hysteroscopic surgery as an alternative to hysterectomy for dysfunctional uterine bleeding, but we agree with O'Connor and colleagues that much more can be learnt about new surgical techniques from appropriate randomised trials.

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Clonality in Langerhans' cell histiocytosis

EDITOR,—Finbarr E Cotter and Jon Pritchard rightly state that the finding of clonality in Langerhans' cell histiocytosis might provide "the first solid clue to defining the aetiology of the condition in 100 years." As Langerhans' cell histiocytosis is probably a clonal neoplastic disorder² the occurrence of both localised (meaning strictly localised to the bone) and disseminated forms as well as both non-familial and familial cases suggests that it may arise by a two step mutational process, similar to that in the development of retinoblastoma. The two mutation hypothesis was first formulated in 1971 by Knudson, who postulated that two independent events are necessary for a cell to acquire the potential to become neoplastic.³ This notion has now been supported by molecular genetic data in both retinoblastoma and Wilms' tumour. Certain paediatric tumours, whether hereditary or non-hereditary, arise as a consequence of the inactivation of both alleles of one tumour suppressor gene.

Data on 223 patients gathered from four review articles⁴⁻⁷ suggest that Langerhans' cell histiocytosis might also develop as a consequence of two rate limiting events (figure). χ^2 Analysis shows

Distribution of localised (n=75) and disseminated (n=148) forms of Langerhans' cell histiocytosis by age, according to four major review articles⁴⁻⁷

a significant difference in the age at diagnosis between the 75 patients with single bone lesions and the 148 patients with multiorgan disease ($P < 0.001$). This observation is consistent with the earlier age at onset of bilateral retinoblastoma. Also in accord with the "two hit" hypothesis is the fact that in 16 familial cases of Langerhans' cell histiocytosis (five twins, three siblings; literature available on request) all the affected members had multiorgan disease. Although the number of hereditary cases of Langerhans' cell histiocytosis is too small to permit analysis of the type that is possible for retinoblastoma, the data strongly point towards a two step process.

Remarkably, congenital Langerhans' cell histiocytosis occurs solely as the cutaneous or disseminated form and never as the localised form. The cutaneous form should be considered to be disseminated, however, as it seems to be different; the patients are primarily infants and have an excellent prognosis, and the lesions often regress spontaneously. The cutaneous form may represent a special germline form in which the second event is atypical, perhaps like in neuroblastoma IV-S.

Put together, these data predict the existence of a tumour suppressor gene for Langerhans' cell histiocytosis. Genetic linkage analyses in disseminated Langerhans' cell histiocytosis should allow the gene to be localised. Similarly, evaluation of loss of polymorphic markers (studies of loss of heterozygosity) in localised and disseminated Langerhans' cell histiocytosis will help to define the region of interest. Finally, careful karyotyping of patients with the disease might show the