

Application of operation room optimization process with multidisciplinary collaborative management in hysteromyoma surgery

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Objective: To explore the application of operation room optimization process with multidisciplinary collaborative management in hysteromyoma surgery. **Methods:** 500 patients who underwent hysteromyoma surgery from March to December 2018 were selected as the control group. 500 patients who underwent hysteromyoma surgery using operation room optimization process with multidisciplinary collaborative management from March to December 2019 were selected as the observation group. The scores of self-care ability (ESCA), psychological status (HAMA, HAMD score), time of postoperative early ambulation activity, comfort of ambulation activity, postoperative hospital stay and total hospital stay, postoperative complications, quality of life score (SF-36), satisfaction with care were compared between the two groups. **Results:** There was no significant difference in the scores of ESCA, HAMA and HAMD between the two groups before operation ($P>0.05$). On the 7th day after operation, the score of ESCA of the two groups was increased ($P<0.05$), and that of the observation group was higher than that of the control group ($P<0.05$). The scores of HAMA and HAMD of the two groups were lower than that before operation ($P<0.05$) and that of the observation group was lower than that of the control group ($P<0.05$). The earliest time of postoperative ambulation activity of the observation group was earlier than that of the control group ($P<0.05$). Ambulation activity comfort was superior to the control group ($P<0.05$). The postoperative hospital stay and total hospital stay of patients in the observation group were shorter than that in the control group ($P<0.05$). There was no significant difference in preoperative SF-36 scores between the two groups ($P>0.05$). There was significant difference in SF-36 scores between the two groups after operation and after follow-up for 3 months ($P<0.05$). The occurrence of adverse events in the observation group was lower than that in the control group ($P<0.05$). The satisfaction of nursing in the observation group was higher than that in the control group ($P<0.05$). **Conclusion:** The application of multidisciplinary collaborative management in hysteromyoma surgery can optimize the operation process, alleviate the patient's operation anxiety, promote the patient's postoperative rehabilitation, improve the patient's quality of life and improve the patient's satisfaction, and therefore, it is worth popularizing.

Key words: Multidisciplinary collaborative management; Operation room; Hysteromyoma

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Hysteromyoma is the common gynecological disease, most of them are benign tumors. Clinical manifestations include abdominal mass, pain and discomfort and menstrual dysfunction as main manifestations. Hysteromyoma develops slowly, and patients can maintain normal work and life¹. Therefore, no attention is paid at the early stage of the disease, and it is easy to delay the optimal

treatment time. Many patients with hysteromyoma have surgical indications when the disease is discovered, and therefore, the clinical treatment of hysteromyoma is mainly surgical treatment. At present, the surgical treatment of hysteromyoma is mature, but there is still a certain risk of complications, which may affect the prognosis and the preservation of uterine function. Therefore, it is

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very important to establish a multidisciplinary cooperative management model². In our hospital, the operation room optimization process with multidisciplinary collaborative management was applied to hysteromyoma surgery, and good results were obtained, which are reported as follows.

DATA AND METHODS

Information

General information

500 patients who underwent hysteromyoma surgery from March to December 2018 were used as the control group. 500 patients who underwent hysteromyoma surgery with operation room optimization process with multidisciplinary collaborative management from March to December 2019 were used as the observation group. The control group was aged 18-79 years, with a mean age of (48.26 ± 4.38) years. The course of disease was 1-3 years, with a mean duration of (2.15 ± 0.52) years. The diameter of myoma was 1-5 cm, with a mean diameter of (2.34 ± 0.47) cm. The shortest operation time was 15 min and the longest was 362 min, with mean of (72.18 ± 9.68) min. The age of the patients in the observation group was 18-81 years, with the mean age of (48.85 ± 4.55) years, the course of disease was 1-3 years, the mean course of disease was (2.09 ± 0.48) years, the diameter of myoma was 1-5 cm, the average diameter was (2.38 ± 0.50) cm, the shortest operation time was 11 min, the longest one was 503 min, the mean one was (75.17 ± 9.67) min. There was no significant difference but comparability in general clinical data between the two groups ($P > 0.05$).

Inclusion criteria and exclusion criteria

Inclusion criteria: (1) Hysteromyoma confirmed by B-ultrasound examination; (2) Indicated for laparoscopic myomectomy; (3) Age between 18 and 55 years;

Exclusion criteria: (1) Pregnant and lactating women; (2) Patients with other serious gynecologic diseases; (3) Patients with coagulation disorders; (4) Patients with psychiatric diseases; (5) Patients with other severe cardiovascular and cerebrovascular diseases.

Methods

Intervention methods

The control group was given routine operation room care, including: (1) Preoperative preparation: Surgical precautions were submitted to the patient and his/her family, the patient's tension was relieved, and the patient signed the informed consent form. Fasting for 6 hours before surgery and water deprivation for 2 hours. (2) Intraoperative management: monitoring of basic vital signs; (3) Postoperative management: Diet management and exercise guidance were given according to postoperative routine.

On the basis of the above, the observation group will conduct multidisciplinary collaborative management to optimize operation room process, and establish a multidisciplinary nursing team: a team consisting of 1 nurse in charge of obstetrics and gynecology, 4 nurses in department of gynecology, 1 nurse in department of rehabilitation, 1 nurse in department of psychology, 1 nurse in department of nutrition and 2 nurses in operation room, whose specific work contents are as follows:

Preoperative preparation: (1) Auxiliary departments: Before operation, the ultrasound department and imaging department shall be required to make clear diagnosis and evaluate the patient's condition; the ECG room, CT room and laboratory shall be required to exclude whether the patient has contraindications to the operation; (2) Psychological guidance: Before operation, the psychiatrist shall conduct psychological intervention to the patient, assist the patient to relieve the tension and evaluate the patient's psychological condition. (3) Preoperative conversation: The doctor who is experienced and qualified in the department communicated with the patient and the patient signed the informed consent form; (4) Preoperative preparation: The operation room shall conduct preoperative visit, prepare the proper operating space for the operation, prepare the necessary surgical articles, inspect the instruments required for the operation, and ensure the normal use of instruments; the anesthesiology department shall prepare the anesthesia-related articles; the blood transfusion department shall prepare the blood transfusion

emergency articles. (5) Early rehabilitation: Rehabilitation department intervenes patients' rehabilitation early, explaining the importance of early rehabilitation for patients, instructing patients to perform abdominal massage, explaining the key points of postoperative rehabilitation, etc.

Intraoperative cooperation: (1) Operation position: The nurse in operation room and main surgeon and assistant shall cooperate to help the patient to set his/her position; (2) Establishment of intraoperative venous access: routine establishment of two venous access; (3) Intraoperative anesthesia management: selection of epidural anesthesia or subarachnoid block anesthesia; (3) Intraoperative heat preservation: application of infusion warmer to keep warm and control the room temperature at about 25 °C. (4) Pay close attention to the change of vital signs of the patient during operation, and prepare for emergency treatment.

Postoperative intervention: (1) Postoperative transportation: The nurse in operation room assisted in transferring the patient back to the department, ensured that the vital signs of the patient were stable during the transportation, and all pipelines were unblocked. (2) The department nurses instruct patients in postoperative management of gastrointestinal tract, good posture, etc., prevent wound infection, keep the wound tidy, prevent all kinds of complications, record the patient's intake and output volume, and monitor the patient's vital signs; (3) Postoperative psychological guidance: The nurses of psychology department provide postoperative psychological guidance to the patients; (4) Postoperative rehabilitation: The rehabilitation department instructs patients to gradually begin rehabilitation training, promote blood circulation of lower limbs, and prevent venous thrombosis; (5) Postoperative nutrition recovery: The nurse in nutrition department guides the patient's postoperative nutrition balanced diet, improves the resistance and accelerates the postoperative recovery.

Efficacy observations

The main results were as follows: (1) Self-care ability score: Self-care ability scale (ESCA) was used before

and 7 days after operation. There were 43 subjects in total, and the total score was 0 ~ 172 points. The score was in direct proportion to self-care ability.

2. Assessment of psychological status of patients: Hamilton Anxiety Scale (HAMA) and Hamilton Depression Scale (HAMD) were used before and 7 days after operation, respectively. The score is inversely proportional to the patient's emotional well-being.

(3) Postoperative ambulation condition: the patient's earliest ambulation activity time after operation and the comfort degree of ambulation activity. Time of first ambulation: calculate the time required from the end of operation to the first passing 6-min walking test after returning to ward, and the time required for the first ambulation. The visual analogue scoring method was used for the comfort of the ambulation. According to the patient's subjective perception score, the total score was 10 points, and the score was in direct proportion to the comfort level.

(4) Comparison of postoperative hospital stay and total hospital stay.

(5) Postoperative complications: The postoperative blow-by pain, urinary retention, incision infection, urinary system infection and postoperative hemorrhage were recorded in the two groups.

(6) Quality of life score (SF-36): Short Form-36 (SF-36) was used to assess the quality of life of patients before and after operation. The scale consists of 8 items, with a total of 36 items, and the quality of life is proportional to the score.

(7) Satisfaction of nursing: A questionnaire was used to obtain the satisfaction of patients to nursing. The total score was 100 points, and the degree of satisfaction was in direct proportion to the score.

Statistical methods

Statistical software SPSS 26.0 was used for data analysis. Measurement data were expressed as $\bar{x} \pm s$, counting data as percentage, paired t test was used for comparison of group means, independent sample t test was used for comparison of group means, χ^2 test was used for counting data, and $P < 0.05$ was considered statistically significant.

RESULTS

Comparison of self-care ability between the two groups

There was no significant difference in ESCA scores between the two groups before operation ($P>0.05$). On postoperative day 7, the ESCA of the two groups was higher than that before operation ($P<0.05$), and the observation group was higher than the control group ($P<0.05$). See Table 1.

Table 1. Comparison of ESCA scores between the two groups before and after treatment ($\bar{x}\pm s$, points)			
Group	Number of cases	ESCA	
		Before operation	After operation
Observation group	500	94.63 $\pm$ 12.69	113.58 $\pm$ 11.05
Control group	500	94.59 $\pm$ 12.40	105.66 $\pm$ 10.58
t value		0.050	11.576
P value		0.960 [#]	0.000 [*]
Note: [#] before operation, compared with control group, $P>0.05$, [*] after operation, compared with control group, $P<0.05$.			

Assessment of psychological status of patients in both groups

There was no significant difference in the scores of HAMA and HAMD between the two groups before operation ($P>0.05$). The scores of HAMA and HAMD in the two groups after operation were lower than those before operation ($P<0.05$). The scores in the observation group were lower than those in the control group ($P<0.05$). See Table 2.

Table 2. Comparison of HAMA and HAMD scores between the two groups before and after treatment ($\bar{x}\pm s$, points)				
Group	HAMA		HAMD	
	Before operation	After operation	Before surgery	After operation
Observation group	14.78 $\pm$ 3.52	5.39 $\pm$ 1.47	15.96 $\pm$ 2.18	6.49 $\pm$ 1.25
Control group	14.77 $\pm$ 3.49	10.58 $\pm$ 2.09	15.87 $\pm$ 2.32	11.58 $\pm$ 1.59
t value	0.045	-45.418	0.632	-56.274
P value	0.964 [#]	0.000 [*]	0.527 [#]	0.000 [*]
Note: [#] before operation, compared with control group, $P>0.05$, [*] After operation, compared with control group, $P<0.05$.				

Comparison of the earliest postoperative ambulation activity time and the comfort degree of ambulation activity between the two groups

The earliest postoperative ambulation activity time of patients in the observation group was earlier than that in the control group ($P<0.05$), and the comfort

degree of ambulation activity of patients in the observation group was superior to that in the control group ($P<0.05$). See Table 3.

Table 3. Comparison of the earliest postoperative ambulation activity time and ambulation activity comfort between the two groups ($\bar{x}\pm s$)		
Group	Earliest ambulation activity time (h)	Ambulation activity comfort (min)
Control group	49.33 $\pm$ 5.48	3.26 $\pm$ 1.68
Observation group	43.23 $\pm$ 2.47	6.07 $\pm$ 1.30
t value	22.692	-29.579
P value	0.000	0.000
Note: compared with control group, $P<0.05$.		

Comparison of hospital admissions between the two groups

The postoperative hospital stay and total hospital stay in the observation group were shorter than that in the control group ($P<0.05$). See Table 4.

Table 4. Comparison of postoperative hospital stay and total hospital stay between the two groups ($\bar{x}\pm s$)		
Group	Postoperative hospital stay (d)	Total hospital stay (d)
Control group	3.56 $\pm$ 1.20	6.19 $\pm$ 0.76
Observation group	2.75 $\pm$ 0.54	5.15 $\pm$ 0.66
t value	13.764	23.103
P value	0.000	0.000
Note: compared with control group, $P<0.05$.		

Comparison of postoperative quality of life between the two groups

There was no significant difference in preoperative SF-36 scores between the two groups ($P>0.05$). There was significant difference in postoperative SF-36 scores between the two groups ($P<0.05$). See Table 5.

Table 5. Comparison of SF-36 scores between the two groups ($\bar{x}\pm s$)				
Group	Observation group		Control group	
	Before operation	After operation	Before operation	After operation
Physiological function	70.20 $\pm$ 4.63	81.36 $\pm$ 1.56	69.92 $\pm$ 4.97	75.20 $\pm$ 2.65
Physical functioning	64.36 $\pm$ 1.52	69.69 $\pm$ 1.76	65.01 $\pm$ 1.63	66.36 $\pm$ 1.58
Physical pain	68.52 $\pm$ 6.85	77.68 $\pm$ 5.62	68.57 $\pm$ 5.99	71.25 $\pm$ 4.98
Vitality	52.74 $\pm$ 7.55	63.21 $\pm$ 4.69	53.02 $\pm$ 7.03	58.26 $\pm$ 5.69

Social function	50.63±8.25	59.94±8.20	50.33±8.60	52.02±8.55
Emotional function	75.03±7.52	85.21±7.26	75.20±7.22	75.11±8.23
Mental health	60.32±5.52	68.71±5.66	60.05±5.23	61.36±5.77
General health	52.36±9.06	56.36±8.99	52.69±9.15*	53.69±8.79#
Note: *compared with the control group, P<0.05; #compared with the control group, P>0.05.				

Incidence of postoperative adverse events in both groups

The incidence of adverse events in the observation group was lower than that in the control group ($P<0.05$). See Table 4.

Evaluation of patient satisfaction with nursing in both groups

The nursing satisfaction of the observation group was higher than that of the control group ($P<0.05$). See Table 5.

Table 6.		
Comparison of incidence rate of postoperative adverse events between the two groups ($\bar{x}\pm s$)		
Adverse events	Observation group (case)	Control group (case)
Blow-by pain	100	350
Urinary retention	39	95
Pain due to ambulation activity	24	59
Incision infection	13	16
Postoperative bleeding	32	90
Note: compared with control group, $P<0.05$.		

Table 7.		
Satisfaction score of two groups of patients to nursing ($\bar{x}\pm s$)		
Group	Number of cases	Beauty satisfaction
Control group	500	79.74±4.51
Observation group	500	91.36±4.67
t value	-40.002	
P value	0.000	
Note: compared with control group, $P<0.05$.		

CONCLUSION

Hysteromyoma is the common disease that harms women's health. Surgical treatment of hysteromyoma is the preferred method, but surgical trauma

has adverse effects on patients' prognosis³. Therefore, it is important to break the routine surgical nursing mode and seek the surgical nursing mode that can accelerate patients' postoperative recovery⁴. Therefore, how to improve the outcome of patients undergoing laparoscopic myomectomy is the focus of clinical nursing⁵. The multidisciplinary collaborative management operation room model is a new and patient-centered model, which can effectively integrate various medical resources⁶, improve the working efficiency by assembling a multidisciplinary, fixed and mutual-help nursing team⁷, comprehensively consider many problems that may exist before and after operation, and provide professional solutions, so as to optimize the surgical treatment process and promotes postoperative recovery⁸. At present, the multidisciplinary collaborative management model has been applied in clinical practice. Relevant studies show that the multidisciplinary collaborative management model has achieved a good effect in the treatment of diabetes mellitus^{9,10}. However, there are very few reports on the application of the multidisciplinary collaborative management model in hysteromyoma surgery¹¹.

Based on many years of working experience in our hospital, a multidisciplinary collaborative group including gynecology department, operation room, anesthesiology department, blood transfusion department, psychology department, rehabilitation department and nutrition department was established to provide comprehensive guarantee for patients with hysteromyoma including diagnosis, treatment, rehabilitation and psychological counseling from pre-operation, intra-operation and post-operation⁸. The results of this study showed that the scores of ESCA in the observation group were higher than those in the control group 7 days after the operation, and those of HAMA and HAMD is lower than those in the control group 7 days after the operation. This was because the multidisciplinary collaborative management model took the psychological conditions of the patients into account¹², the psychological counseling was given to the patients before and after operation, and the awareness of the patients' diseases was enhanced

¹³, which helped the patients to correctly understand the operation of hysteromyoma and relieve the tension and anxiety ^{14,15}. The earliest postoperative ambulation activity time of the observation group was earlier than that of the control group. The comfort degree of ambulation activity of the observation group was superior to that of the control group. The hospital stay was shorter than that of the control group because the early rehabilitation and nutrition department intervention improved the immunity of patients ¹⁶, enhanced the ability to resist inflammatory reaction ¹⁷, accelerated the postoperative recovery of patients. Therefore, the incidence of postoperative complications was also reduced ^{18,19}. At the same time, the multidisciplinary collaborative management model takes the patient as the center, so as to make the nursing work pay more attention to the patient's feeling, and to improve the patient's satisfaction ²⁰.

In conclusion, the application of multidisciplinary collaborative management in hysteromyoma surgery can optimize the operation process, alleviate the patient's operation anxiety, promote the patient's postoperative rehabilitation, improve the patient's quality of life and improve the patient's satisfaction, and therefore, it is worth popularizing.

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