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Evaluation of the Adnexal Masses in Hysterectomized Women: An Observational Study

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ABSTRACT

Background and aim: To evaluate the clinical, pathological and surgical characteristics of adnexal masses in hysterectomized women with one or both ovaries conserved.

Material and methods: A retrospective observational study was conducted in the Department of Obstetrics and Gynaecology over twenty months, including 80 hysterectomized women with one or both adnexa preserved and later presented with subsequent adnexal masses. The previous surgical histories of these patients, present clinical and pathological characteristics of ovarian cysts, and possible management options were evaluated.

Results: Among the study's 224 hysterectomized women presented to the Gynaecology Outpatient Department (OPD), 80 women with adnexal masses were included. Among the 80 hysterectomies, most were abdominal hysterectomies. Moreover, most patients underwent hysterectomy between 40 and 50 years of age. Symptomatic Fibroid uterus was the most common indication for hysterectomy. Among the 80 women in, 68.8% women, both ovaries were preserved. The most common presenting symptom was pain abdomen. Adnexal masses are evaluated by clinical examination, Radiological imaging modalities, and tumour markers depending on the need. Among the 80 women, 43.8% needed surgical intervention, 48.8% managed with conservative treatment, and 7.5% were referred to Oncology. Benign ovarian epithelial tumours were the most common type among surgically treated.

Conclusions: The management of adnexal masses in hysterectomized women should be individualized, depending on the presenting symptoms, the size of the adnexal mass, radiological findings, tumour markers, and expected future complications.

1. Introduction

The most common major gynecological surgery in India and worldwide is a hysterectomy, either abdominal or vaginal, or laparoscopic.^[1, 2] Usually, hysterectomies are being done for indications like abnormal uterine bleeding (AUB), leiomyomas, adenomyosis, endometriosis, pelvic inflammatory disease (PID), prolapse of the uterus, obstetrical catastrophes, malignant conditions like cervical intraepithelial neoplasia, endometrial carcinoma, conditions involving adjacent organs which needs excision of surrounding structures.^[3] Whether the adnexa is retained is always questioned whenever a hysterectomy is planned for a benign condition. Usually, salpingectomy can be done along with a hysterectomy to prevent the Risk of malignancies of the Fallopian tubes. But regarding the conservation of ovaries, some points to be taken into consideration, like the benefits of prophylactic oophorectomy are

the prevention of ovarian or breast malignancies in the future and reducing the possibility of future adnexal surgeries. Moreover, the risks involved with oophorectomy causing early surgical menopause are increased cardiovascular diseases, osteoporosis leading to bone fractures, lung cancers and total cancer mortality, and neurological and psychiatric disorders. So, as the benefits outweigh the risks, many studies suggest retaining the ovaries when hysterectomies are done during the premenopausal age group for benign conditions.^[4] When adnexal structures are retained during a hysterectomy, some women may get adnexal masses in the future, which may require surgical intervention. According to a few studies, the incidence of developing adnexal masses after a hysterectomy is as high as 50.7%, and patients requiring reoperation accounted for 2.7 to 5.5%.^[5, 6] As it is difficult to diagnose and manage adnexal masses after hysterectomy and more risks are

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involved with reoperation, the doctor and the patient should decide after considering all possible factors. Therefore a proper diagnosis of the adnexal mass by considering the clinical and pathological features, radiological diagnosis, and tumor markers is important. With proper diagnosis, preventive strategies and treatment modalities can be planned.^[7] This retrospective observational study evaluates the clinicopathological features of the adnexal masses in hysterectomized women, their preventive strategies, and management modalities.

2. Material and methods

It is a retrospective observational study conducted in the Department of Obstetrics and Gynaecology over twenty months from January 2021 to August 2022. Ethical approval for the study was obtained by the Ethics Committee of Sri Balaji Medical College and Research Institute (approval code Roc-No.01/IEC/SBMSH&RI/2021). All participants were provided written informed consent before the study and had the right to withdraw from the study at any stage. The study subjects included 80 hysterectomized women who underwent either abdominal or vaginal hysterectomies or laparoscopic for benign conditions with one or both adnexa preserved and later presented with subsequent adnexal masses, came to Gynaecology OPD. The clinical,

pathological, and surgical details related to previous hysterectomy and adnexal pathology were collected retrospectively by history taking and from patient medical records. Demographic characteristics, including age, height, weight, and Body Mass Index [BMI]. Characteristics of present adnexal lesions, including symptoms, interval to diagnosis, Cancer Antigen (CA)125 or other needed tumor marker levels, ultrasonographic or Computed Tomography scan (CT) or Magnetic Resonance Imaging (MRI) features, operative and pathologic characteristics of adnexal masses in patients who required a reoperation including the type of the surgery. The origin of the adnexal lesion, malignancy possibility, per or postoperative complications, and length of hospital stay were all noted. Statistical analyses were conducted using version 16.0 of the Statistical Package for Social Sciences (SPSS).

3. Results

In the present study, 88 hysterectomized women who presented with adnexal masses were taken, aged between 30 to 60 years, with a mean age of 44. Details of hysterectomies in study subjects like the age of the patients at the time of hysterectomy, type of hysterectomy, indications of surgery, whether adnexa retained or not, and presenting symptoms of adnexal masses are given in Table 1.

Table 1. Surgical details of hysterectomies and presenting symptoms of adnexal masses in 80 study subjects.

Age in years	30 to 40 years	8(10%)
	40 to 50 years	58(72.5%)
	50 to 60 years	14(17.5%)
Type of hysterectomy	Abdominal	57(71.3%)
	Vaginal	13(16.3%)
	Laparoscopic	12(15%)
Indications	Symptomatic fibroids	40(50%)
	Prolapse	13(16.3%)
	Abnormal Uterine Bleeding	12(15%)
	Adenomyosis	12(15%)
	No records	3(3.7%)
Adnexa	Both adnexa retained	55 (68.8%)
	On one side, adnexa retained	25(31.3%)
Presenting symptoms of adnexal mass	Pain abdomen	55(68.8%)

	Mass per abdomen	15(18.8%)
	Loss of appetite, weight loss	6(7.5%)
	Bladder and bowel disturbances	4(5%)

Among them, 8 (10%) women underwent a hysterectomy between 30 to 40 years, 58 (72.5%) women underwent a hysterectomy between 40 to 50 years, and 14 (17.5%) women underwent a hysterectomy between 50 to 60 years. Among the 80 subjects, 57 (71.3%) women underwent an abdominal hysterectomy, 13 (16.3%) underwent a vaginal hysterectomy, 12 (15%) underwent a laparoscopic hysterectomy. In this study group, the most common indication for hysterectomy was symptomatic fibroid uterus in 40 (50%) women, prolapse in 13 (16.3%) women, Abnormal Uterine Bleeding in 12 (15%) women, adenomyosis in 12 (15%) women, and 3 (3.7%) women

didn't have surgical records. Among these study groups, 55 (68.8%) women had both adnexa, and 25 (31.3%) women had one side adnexa retained during surgery. Among these women, the most common presenting symptom was pain abdomen in 55 (68.8%) women, mass per abdomen in 15 (18%) women, loss of appetite and weight loss in 6 (7.5%) women, bowel and bladder disturbances in 4 (5%) women. Details of adnexal masses in study subjects, like the site of origin of the masses, size of the masses, CA 125 levels, and mode of treatment, are given in Table 2.

Table 2. Adnexal masses in 80 study subjects – Site of origin, size, CA 125 levels, and treatment.

Origin of adnexal mass	Ovarian masses	58(72.5%)
	Tubal masses	10(12.5%)
	Tubo-ovarian masses	6(7.5%)
	Peritoneal inclusion cysts	6(7.5%)
Size of the cyst and CA 125 levels	<5 cm, normal CA125 levels	32(40%)
	5 to 7 cm, normal CA125 levels	7(8.8%)
	>7 cm, raised CA125 levels	35(43.8%)
	Complex cysts, CA125 levels >200 U/ml.	6(7.5%)
Treatment	Simple cysts with normal CA 125 levels	Conservative
	Larger cysts with normal or raised CA 125	Surgery
	Complex cysts with CA 125 levels>200	Oncology Dept

Among these women, radiological imaging like ultrasonography, CT, or MRI is done as needed, and the most widely accepted tumor marker for ovarian malignancies CA 125 levels done. Among the adnexal masses, 58 (72.5%) were of ovarian origin, 10(12.5%) were hydrosalpinx, 6 (7.5%) were tubo-ovarian masses, and 6 (7.5%) were peritoneal inclusion cysts. Depending on Radiological findings and CA 125 levels, 32 (40%) women had adnexal masses of less than 5 centimeters with clear fluid and normal CA 125 levels, 7 (8.8%) women had adnexal masses of 5 to 7 centimeters with thin septations and normal CA 125 levels, 35 (43.8%) women had adnexal masses of more than 7 centimeters, complex cysts with thick septations. They had

raised CA 125 levels. And 6 (7.5%) women had complex adnexal masses with solid component CA 125 levels of more than 200 U/ml. Among these patients with smaller cysts and normal CA 125 levels, mostly follicular and hemorrhagic cysts received conservative management, and follow-up was done for 3 to 6 months. Patients with raised CA 125 levels and/or larger sizes were surgically managed. The patients with adnexal masses with solid components with CA 125 levels of more than 200U/ml were referred to the Oncology department. Surgical details of the women who underwent reoperations, like the type of surgery and intraoperative complications like adhesions with surrounding structures. Are given in Fig 1.

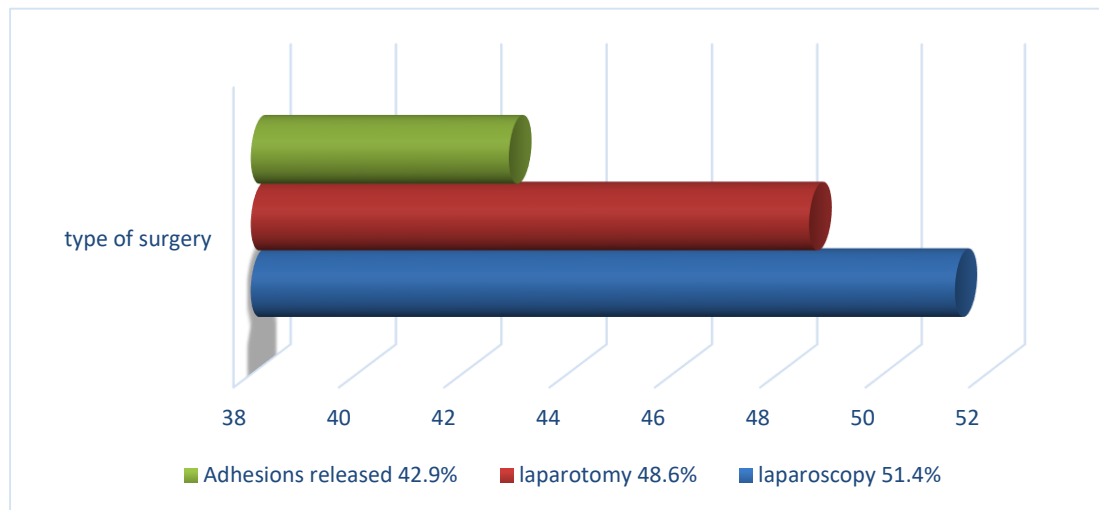


Fig. 1. Surgical details of re-operations—a type of surgery, presence of adhesions.

Among the 35 women who underwent surgery, laparoscopic surgery was done on 18 (51.4%) women, and 17 (48.6%) women underwent laparotomy. Around 15 (42.9%) women had intra-abdominal adhesions between the adnexal mass, peritoneum, and bowel, which were released during the

surgery. A few intraoperative images are inserted in Fig. 2, showing different types and sizes of cysts. Larger cysts were dealt with laparotomy (A, B), and medium-sized cysts with laparoscopy (C, D). The presence of adhesions are also can be seen (D).

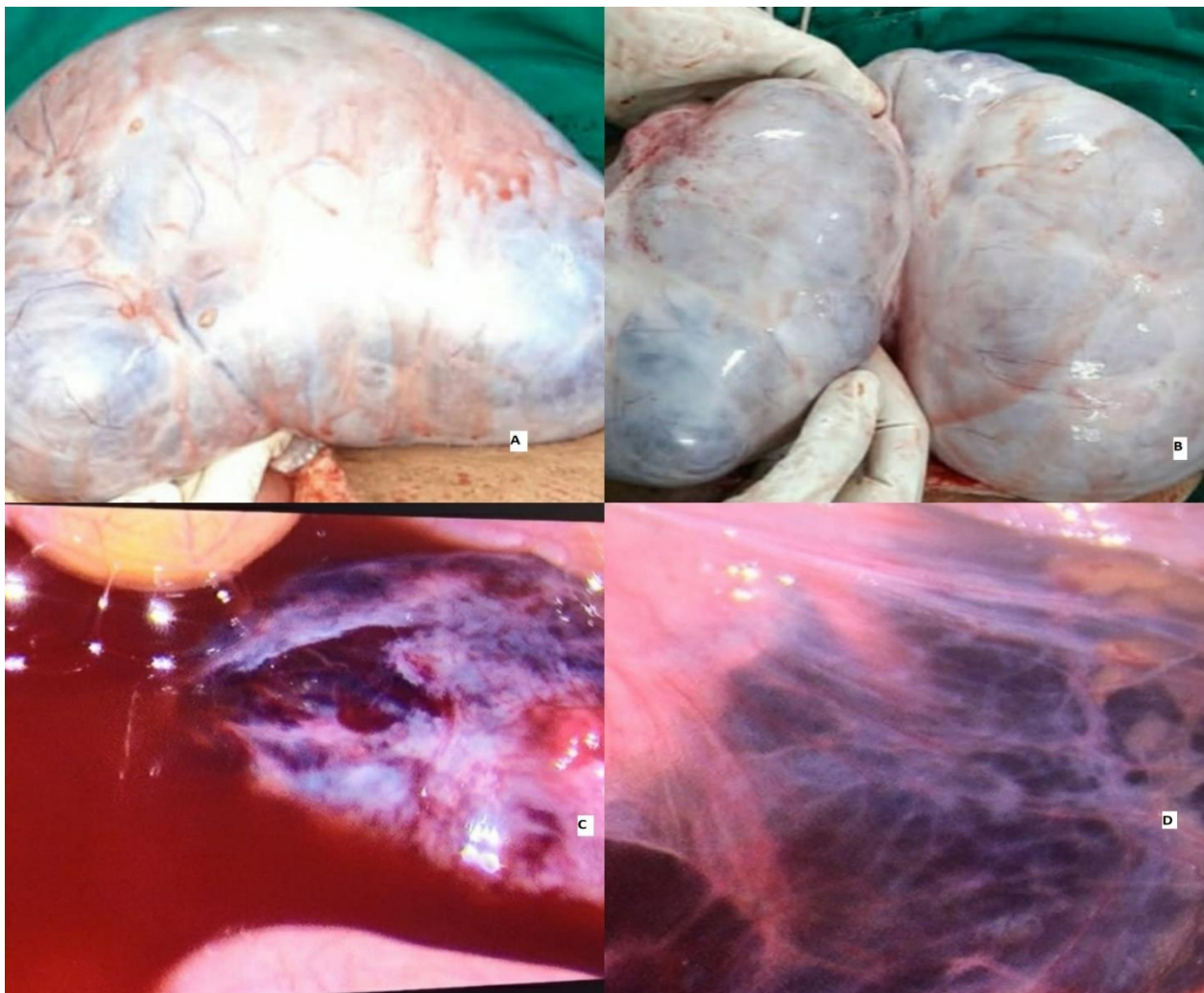


Fig. 2. Intraoperative images of few adnexal masses during re-operations.

The histopathological details of surgically treated patients, such as the type of mass, site of origin, and percentages, are given in Fig. 3.

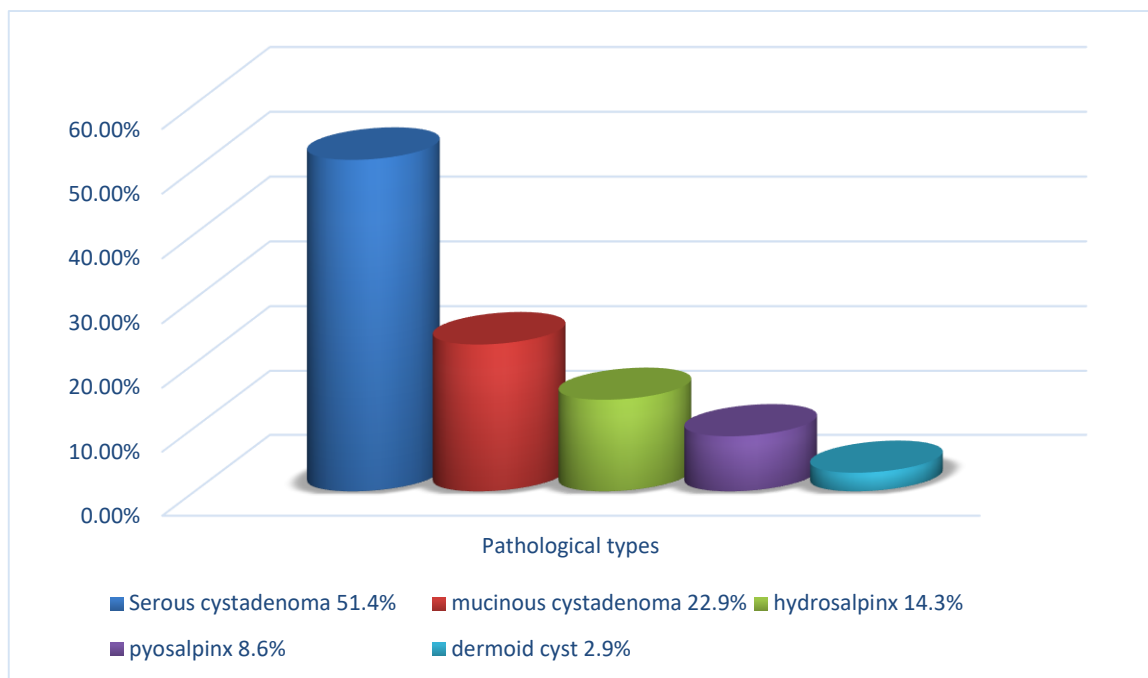


Fig. 3. The histopathological details of adnexal masses-types and percentages.

The histopathological reports of surgically treated patients are serous cystadenoma of the ovary in 18 (51.4%) women, mucinous cystadenoma of

the ovary in 8 (22.9%), hydrosalpinx in 5 (14.3%) women, pyosalpinx in 3 (8.6%) women, dermoid cyst in 1 (2.9%) woman.

4. Discussion

The most common major gynecological surgery performed worldwide is hysterectomy though the mode of surgery may differ from abdominal, vaginal, or laparoscopic. Moreover, many people consider a hysterectomy the end for all gynecological problems, but sometimes in the case of the retained adnexa, few patients may experience adnexal masses post hysterectomy. In this retrospective observational study evaluating the adnexal masses arising in hysterectomized women, the age group was between 30 to 60 years, with a mean age of 44. Among them, 10% underwent a hysterectomy between 30 to 40 years, 72.5% between 40 to 50 years, and 17.5% between 50 to 60 years. In the study of Jha et al.,^[8] 115 hysterectomized women with pelvic masses with a mean age of 41.3 years were taken into the study. Among them, 68.3% were less than 35 years, and 31.8% were between 35 to 45 years. In a study by Movva et al.,^[9] the study group included 66 women in the age group 30 to 65 years with a mean age of 42.3 years; 18% were under 40 years, 68% were 40 to 50 years, and 14% were under 50 years. Moreover, the study group of Öksüzoğlu et al.,^[10] included 137 hysterectomized women with adnexal masses with a mean age of 42.6 years. In the present study, among the 80 subjects, 71.3% of women underwent an abdominal hysterectomy, 16.3% underwent a vaginal hysterectomy, and 15% underwent a laparoscopic hysterectomy. And the most common indication for hysterectomy was symptomatic fibroid uterus in 50% of women, prolapse in 16.3% of women, AUB in 15% of women, adenomyosis in 15% of women, and 3.7% of women who didn't have surgical records. In studies of Movva et al.,^[9] and Öksüzoğlu et al.,^[10] also Abdominal hysterectomies were the most common surgery, and symptomatic fibroids were the most common indication. However, in a study

by Jha et al.,^[8] the most common route of hysterectomy was abdominal, but the most common indication was PID. In this study, 68.8% of women had both adnexa, and 31.3% had one-sided adnexa retained during hysterectomy. In studies by Movva et al.,^[9] Öksüzoğlu et al.,^[10] 65%, 82.5% of cases, both ovaries were preserved, and in 29%, 17.5% cases, one ovary was preserved respectively. The most common presenting symptom in the study group was pain abdomen in 68.8% of women, mass per abdomen in 18.8% of women, loss of appetite and weight loss in 7.5% of women, and bowel and bladder disturbances in 5% of women. In a study by Naz et al.,^[11] the most common presenting symptom was pain abdomen in 34.9% of women. In the present study, among the adnexal masses, 72.5% were of ovarian origin, 12.5% were hydrosalpinx, 7.5% were tubo-ovarian masses, and 7.5% were peritoneal inclusion cysts. In a study by Shiber et al.,^[12] 64.8% were ovarian masses, 12.4% were tubal in origin, 20% involved both ovary and tubes, and a small proportion was from non-gynecological structures. In the present study, 48.8% of women presented with small and simple lesions with normal CA 125 levels, required conservative management only, and these masses disappeared during the follow-up period. Whereas 43.8% of women with adnexal masses, which were more symptomatic, larger, and more complicated lesions with thick adhesions, and raised CA 125 levels, underwent surgery. That 7.5% of women with more complicated adnexal masses with solid components, mural nodules, and abnormal Doppler findings with CA 125 levels above 200 U/ml were sent to the Oncology department. In a study by Movva et al.,^[9] 53% of women had an ovarian cyst of < 5 centimeters, and 55% with normal CA 125 levels and CA 125 levels > 200 U/ml were seen in 9% of women.

In this study, among the 35 women who underwent surgery, laparoscopic surgeries were done in 51.4% of women and laparotomies in 48.6% of women, and around 42.9% of women had intra-abdominal adhesions between adnexal mass, peritoneum, and bowel which were released during the surgery. Whereas in the study of Jha et al.,^[8] among 70 surgeries, 42.9% were laparoscopies, and 57.1% were laparotomies. Dense adhesions were seen in 21.4% of cases. And the histopathological reports of surgically treated patients in the present study showed serous cystadenomas in 51.4% of women, mucinous cystadenomas in 22.9%, hydrosalpinx in 14.3% of women, pyosalpinx in 8.6% of women, dermoid cyst in 2.9% women. In a study by Lalooei et al.,^[13] the most common histopathological type was serous cystadenoma in 43.2% of women, followed by mucinous cystadenoma in 17.5%, and stromal cell hyperplasia in 2.2% of women. These days, more studies support the preservation of the ovaries when a hysterectomy is done for benign causes. In some studies, like R Casiano et al.,^[14] the incidence of oophorectomy in hysterectomized women is 9.2%. According to this study, hysterectomy alters the blood flow to the ovaries, which may lead to disturbed ovarian function and pathologies. In a study by Falconer et al.,^[15] it is observed that salpingectomy in benign conditions is associated with a reduced risk of ovarian malignancies. So, according to all these studies, better to advise bilateral salpingectomy to all patients undergoing hysterectomy. Regarding oophorectomy, a decision should be individualized.

The limitations of our study are that it is performed in a relatively short time frame to track complications in patients after hysterectomy and in a relatively small group of people. However, despite these limitations, this study illuminates the advice and knowledge about surgical decisions before and for women with adnexal masses after a hysterectomy.

5. Conclusion

All patients undergoing a hysterectomy may not need an oophorectomy. If the ovaries are in good condition and a hysterectomy is being done for benign indications, better to preserve the ovaries as much as possible, by explaining the need for periodic follow-up to the patients. Also, if they are small with normal tumor markers, more than half of the ovarian cysts in hysterectomized women will disappear soon with conservative management. Among the operated cases, most are benign and originated from the ovary. With periodic follow-ups and with ultrasound examinations, this number can be further decreased by early recognition and medical management of cysts.

Conflict of Interest

The authors declared that there is no conflict of interest.

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