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Quality of Life in Women with Congenital Disorders of Reproductive Organs after Surgery

Ika Arfita[1], Nuring Pangastuti[2†], Shinta Prawitasari[3], Sumarni[4]

[1]Department of Obstetrics and Gynecology Faculty of Medicine, Public Health, and Nursing Gadjah Mada University - RSUP Dr. Sardjito Yogyakarta, Fakultas Kedokteran Universitas Syiah Kuala

[2†]Department of Obstetrics and Gynecology Faculty of Medicine, Public Health, and Nursing Gadjah Mada University - RSUP Dr. Sardjito Yogyakarta, penulis telah meninggal dunia tanggal 24/7/2023

[3]Department of Obstetrics and Gynecology Faculty of Medicine, Public Health, and Nursing Gadjah Mada University - RSUP Dr. Sardjito Yogyakarta

[4]Department of Psychiatry Faculty of Medicine, Public Health, and Nursing Gadjah Mada University - RSUP Dr. Sardjito Yogyakarta

†Penulis telah meninggal dunia

Correspondence: drikaarfita@gmail.com

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ABSTRACT

Background: Female reproductive organs' congenital abnormalities consist of abnormalities in the hymen, vagina, cervix, uterus, and others[1]. These abnormalities can affect women's ability to menstruate, sexual relations, reproduction, and psychological conditions[2]. Management of this abnormality depends on the defects of the organs involved and the expected improvement in function. This research was conducted because of the limitation of these cases.

Objective: This study aims to determine the quality of life after surgery in women with congenital abnormalities of the reproductive organs.

Methods: This study used a prospective study with a descriptive observational cross-sectional method. The population was patients at the Obstetrics Gynecology Polyclinic of Dr. Sardjito Hospital Yogyakarta in 2022 who had congenital disorders of the reproductive organs, aged at least 17 years old, and had undergone surgery. Participants filled out the FSFI and sociodemographic questionnaire.

Results: There were 15 participants with 3 types of congenital abnormalities, namely 2 hymenal disorders (microperforate hymen and cribiform hymen), 9 vaginal abnormalities (vaginal agenesis and cervicovaginal agenesis), and 4 uterine and vaginal abnormalities (HWW syndrome). After surgery, 13 people experienced an improvement in abdominal pain; 9 people with primary amenorrhoea were able to menstruate; and 8 married people were able to have sex after surgery. For sexual function, 62.5% of participants had good FSFI scores.

Conclusion: Surgery can provide a good function for abdominal pain, menstruation, and sexual relations.

Keywords: Congenital abnormalities; vaginal agenesis; hymen; HWW syndrome; MRKH; vaginoplasty; FSFI

ABSTRAK

Latar Belakang: Kelainan bawaan pada organ reproduksi wanita meliputi kelainan pada selaput dara, vagina, serviks, rahim, dan lainnya[1]. Kelainan-kelainan ini dapat memengaruhi kemampuan wanita untuk menstruasi, hubungan seksual, reproduksi, serta kondisi psikologisnya[2]. Penanganan kelainan ini bergantung pada jenis kelainan pada organ yang terlibat serta harapan perbaikan fungsinya. Penelitian ini dilakukan karena keterbatasan yang ada pada kasus-kasus tersebut.

Tujuan: Penelitian ini bertujuan untuk mengetahui kualitas hidup pascaoperasi pada wanita dengan kelainan bawaan pada organ reproduksi.

Metode: Penelitian ini menggunakan desain studi prospektif dengan metode observasional deskriptif potong lintang. Populasi penelitian terdiri dari pasien di Poliklinik Kebidanan dan Kandungan Rumah Sakit Dr. Sardjito Yogyakarta pada tahun 2022 yang menderita kelainan bawaan pada organ reproduksi, berusia minimal 17 tahun, dan telah menjalani operasi. Para peserta mengisi kuesioner FSFI dan kuesioner sosiodemografi.

Hasil: Terdapat 15 peserta dengan 3 jenis kelainan bawaan, yaitu 2 kelainan selaput dara (selaput dara mikroperforat dan selaput dara cribiform), 9 kelainan vagina (agenesia vagina dan agenesia servikovaginal), serta 4 kelainan rahim dan vagina (sindrom HWW). Setelah operasi, 13 orang mengalami perbaikan nyeri perut; 9 orang dengan amenorea primer dapat menstruasi; dan 8 orang yang sudah menikah dapat melakukan hubungan seksual setelah operasi. Untuk fungsi seksual, 62,5% peserta memiliki skor FSFI yang baik.

Kesimpulan: Operasi dapat membantu mengatasi nyeri perut, masalah menstruasi, dan masalah dalam hubungan seksual.

Kata kunci: Kelainan bawaan; agenesia vagina; selaput dara; sindrom HWW; MRKH; vaginoplasti; FSFI

INTRODUCTION

Congenital disorders of the reproductive organs are disorders that affect the development and morphology of the fallopian tubes, uterus, vagina, and vulvar introitus, with or without ovaries, urinary organs, bones, or other organs associated with these malformations. Some malformations affect the uterus; therefore, they are called Mullerian anomalies. However, sometimes these abnormalities can be of mesonephric or wolffian origin[1].

This disorder affects a woman's ability to menstruate, have sexual relations, and reproduce. In addition, congenital abnormalities of the female reproductive organs also affect the psychological condition of sufferers. For this reason, it is necessary to treat from the physical and psychological side of sufferers of congenital abnormalities of the female reproductive organs[2].

This female genital disorder is a benign abnormality of normal anatomy that results from abnormalities in the embryological development of the Mullerian ducts or paramesonephric ducts at 6-18 weeks gestation. Three different embryological defects underlying the occurrence of female reproductive anomalies are abnormal formation with failure of development or canalization of the Mullerian ducts, abnormal fusion of the caudal portions, and/or abnormal absorption of the midline septum[3].

The prevalence of vaginal anomalies depends on the type of abnormality diagnosed. Imperforate hymen with different manifestations has an incidence rate of 1 in 1,000, whereas vaginal agenesis is 1 in 4,000 to 10,000. Transverse vaginal septum occurs in about 1 in 30,000 to 80,000 women and is generally not associated with other Mulerian anomalies. Abnormalities of the longitudinal vaginal septum may stand alone or in conjunction with other abnormalities[4].

The clinical features of these female reproductive congenital disorders vary and are related to the complexity and spectrum of the underlying and associated conditions. Knowledge of genitourinary embryology is very important in the understanding, diagnosis and subsequent treatment of genital malformations and in the common gynecological problems in young patients[5].

Defects in the hymen can be done with surgical hymenotomy / hymenectomy so that menstrual flow can come out, tampons can be used, and sexual intercourse can be carried out comfortably[6].

Defects in women with congenital vaginal abnormalities can be divided into two groups, namely the group of women with a functional uterus and the group without a uterus or a rudimentary uterus[7]. The group of women with congenital vaginal abnormalities who have a functional uterus can be divided into a transverse vaginal septum and a longitudinal vaginal septum. Like the imperforate hymen, the transverse vaginal septum is not associated with a Mullerian malformation. The transverse vaginal septum is associated with an imperforate anus and a bicornuate uterus and has very few urologic anomalies[8]. A longitudinal vaginal septum is often associated with a complete uterine septum and a didelphis uterus, but is rarely associated with a bicornuate uterus. In addition to ipsilateral renal agenesis, associated anorectal anomalies such as an imperforate anus with a rectovestibular fistula may be found. If the patient has a uterine septum, a septum resection is performed[6].

Congenital abnormality of the vagina with an absent uterus or with a rudimentary uterus may take the form of vaginal agenesis (Mullerian aplasia). Vaginal agenesis or aplasia usually occurs in combination with uterine agenesis as part of the Mayer-Rokitansky-Kuster-Hauser syndrome (MRKH) or complete androgen insensitivity syndrome (CAIS)[8]. Management of vaginal agenesis is based on three philosophies, namely: management of psychological problems due to the impact of the knowledge that these individuals do not have a vagina or uterus, non-surgical management, and surgical management[9,10].

Neovagina creation can be done with a non-surgical and surgical approach. The nonoperative approach is usually performed by self-dilatation, called Frank's method. Another alternative is intercourse dilatation, called d'Alberton's method[11]. Neovaginal surgical techniques can be performed with three options, namely intestinal vaginoplasty, graft method, and stretching techniques[12].

Surgical intervention is rarely required for defects in the uterus. No surgical intervention is recommended unless there is a recurrent miscarriage in the last trimester or premature birth without another cause[6].

In this study, observations were made on the

functional outcome of surgery to see whether there was an improvement in the quality of life in women with congenital abnormalities of the reproductive organs at RSUP Dr. Sardjito in 2022.

METHODS

This study used a cross-sectional descriptive observation method to discover whether there was an improvement in the quality of life after surgery on women with congenital abnormalities of the reproductive organs. The target population in this study were women with congenital abnormalities of the reproductive organs who visited the Obstetrics and Gynecology Polyclinic of Dr. Sardjito General Hospital Yogyakarta. The reachable population in this study is the target population aged 17 years and over in the period January 2021 to January 2022. Sampling used a total sampling technique during the study period.

The research location is at Dr. Sardjito General Hospital Yogyakarta. Dr. Sardjito General Hospital Yogyakarta was chosen because it is a type A hospital which is the highest referral for the southern part of DIY and Central Java Provinces and has a variety of specialist services including surgery with certain specialties and subspecialties so the hospital services can perform surgical management of various cases with a certain degree of difficulty.

Statistical data analysis in this study was conducted with the help of SPSS version 26.0 for Windows. The research results for categorical data are displayed in the form of the number and percentage of each group, while the numerical data was displayed in the mean and standard deviation.

This study has complied with research ethics principles, including informed consent, anonymity, data confidentiality, and the balance of benefits and risks. This study has also received ethical approval from the Medical and Health Research Ethics Committee (MHREC) under approval number KE/FK/0471/EC/2022.

RESULTS AND DISCUSSION

a. RESULTS

Research participants

There were 15 research participants. Patients with congenital disorders of the reproductive organs visiting the Gynecology Polyclinic at Sardjito General Hospital Yogyakarta in the period of January 2022 to January 2023 were 82 people; Of these patients, 22 met the requirements as study participants, namely those who were 17 years and over and had undergone surgery. Seven patients out of 22 potential subjects refused to participate in the study.

Participant demographic characteristics

Table 1. Characteristics of Research Participants

Characteristic	Total	% / Mean±SD
Age (year)	15	23.67 ± 5.46
BMI (kg/m^2)	15	21.52 ± 6.17
Marital state		
Married	8	53.33
Not married yet	7	46.67
Level of education		
Undergraduate/ diploma	2	13.33
High school	10	66.67
Middle school	3	20.00
Employment status		
Working	9	60.00
Not working	6	40.00
Income		
≥ Regional minimum wage	5	33.33
< Regional minimum wage	10	66.67
Types of congenital abnormalities of the reproductive organs		
Hymenal abnormalities	2	13.33
Vaginal abnormalities	9	60.00
Abnormalities of the uterus and vagina	4	26.67

Table 2 contains the characteristics of surgical procedures performed on women with congenital abnormalities of the reproductive organs.

Table 2. Characteristics of surgical procedures and symptoms and signs before and after surgery in women with congenital abnormalities of the reproductive organs

No.	Identity	Marital status and history	Sign and symptoms before surgery	Diagnosis	Surgery procedure	Evaluation function of the reproductive organs after surgery
1.	Mrs. NA, 26 yo, P0A0	Married for 1 year	Unable to have sex.	Microperforated hymen, bilateral chocolate cysts, adhesions	Laparoscopic bilateral cystectomy, adhesiolysis, hymenectomy	Abdominal pain reduced, menstruation (+), sexual intercourse (+), FSFI score 28.1
2.	Mrs. HN, 34 yo, P0A0	Married for 11 years	Infertility, disturbed sexual intercourse	Hymen cribiformis	Hymenotomy, hymenorrhaphy, history of hymenal incision 20 years ago	Abdominal pain (-), menstruation (+), sexual intercourse (+), FSFI Score 30
3.	Ms. DH, 18 yo, P0A0	Not married yet	Abdominal pain, unable to menstruate (primary amenorrhea)	Vaginal Agenesis (hematometra, bilateral hematosalping, adhesions)	Sigmoid vaginoplasty (history of anoplasty 17 years ago)	Abdominal pain (-), menstruation (+)
4.	Ms. SR, 18 yo, P0A0	Not married yet	Abdominal pain, unable to menstruate (primary amenorrhea)	Vaginal Agenesis (hematometra, hematosalping), Bilateral chocolate cysts, grade IV adhesions	Drainage incision, laparoscopic partial cystectomy dextra, left chocolate cyst drainage incision, adhesiolysis, history of cystectomy o.i dextra chocolate cyst	Abdominal pain reduced menstruation (+)
5.	Ms. NU, 20 yo,	Not married	Abdominal pain, unable	Vaginal Agenesis, Right ovarian cyst	Dextra tubal meatotomy,	Abdominal pain (-),

No.	Identity	Marital status and history	Sign and symptoms before surgery	Diagnosis	Surgery procedure	Evaluation function of the reproductive organs after surgery
	P0A0	yet	to menstruate (primary amenorrhea)		tubal meatoplasty, vaginal abscess drainage, hematosalping and hematometra	menstruation (+),
6.	Ms. YS, 18 yo, P0A0	Not married yet	Abdominal pain, unable to menstruate (primary amenorrhea)	Vaginal agenesis	Sigmoid vaginoplasty	Abdominal pain (-), menstruation (+),
7.	Mrs. T, 31 yo, P0A0	Married for 4 years	Abdominal pain, unable to menstruate (primary amenorrhea), disturbed sexual intercourse	Vaginal agenesis	Sigmoid vaginoplasty (history of vaginal canalization, laparoscopic hysteroscopy o.i paratubal cyst, ovarian pseudocyst, peritoneal cyst, history of vaginal dilatation)	Abdominal pain (-), menstruation (+), sexual intercourse (+), FSFI score 21.4
8.	Mrs. D, 27 yo, P0A0	Married for 2 years	Abdominal pain, unable to menstruate (primary amenorrhea)	Vaginal agenesis	Vaginoplasty 15 years ago, post dilated busination	Abdominal pain (-), menstruation (+), Sexual intercourse (+), FSFI score 20.4
9.	Mrs. DR, 22 yo, P0A0	Married for 2 years	Abdominal pain, unable to menstruate (primary amenorrhea)	Cervicovaginal agenesis	Sigmoid vaginoplasty (history of drainage vaginoplasty 7 years ago)	Abdominal pain (-), menstruation (+), sexual intercourse (+), FSFI score 27.1

No.	Identity	Marital status and history	Sign and symptoms before surgery	Diagnosis	Surgery procedure	Evaluation function of the reproductive organs after surgery
10	Mrs. ADA, 22 yo, P0A0	Married for 1 year	Abdominal pain, unable to menstruate (primary amenorrhea)	Cervicovaginal agenesis, (hematometra), TOA left, hydrosalpinx dextra	Sigmoid vaginoplasty (history of drainage vaginoplasty 9 years ago)	Abdominal pain (-), menstruation (+), sexual intercourse (+), FSFI score 27.1
11.	Mrs. VC, 22 yo, P0A0	Married for 5 years	Abdominal pain, unable to menstruate (primary amenorrhea)	Cervicovaginal agenesis (hematometra, hematosalping), Endometrioma dextra, left chocolate cyst, grade IV adhesions	Sigmoid vaginoplasty, left salpingectomy, left partial oophorochistectomy, adhesiolysis	Abdominal pain reduced, menstruation (+), sexual intercourse (+), FSFI score 28.2
12.	Ms. KN, 18 yo, P0A0	Not married yet	Abdominal pain	HWW syndrome (uterus didelphys, hematometra, hematocolpos, left hemivaginal obstruction, longitudinal vaginal septum, left renal agenesis), chocolate cyst, grade IV adhesions	Diagnostic laparoscopy, adhesiolysis, septectomy, hymenorrhaphy	Abdominal pain (-), menstruation (+)
13.	Ms. DT, 18 yo, P0A0	Not married yet	Abdominal pain	HWW syndrome (hematopyocolpos, left hemivagina, hematopyometra, left hemiuterus, left hematosalping, uterus didelphys), bilateral paratubal cyst	Laparoscopic diagnostic adhesiolysis, cystectomy, left meatotomy, vaginal septectomy (history of drainage incision 2 years ago)	Abdominal pain (-), menstruation (+)
14.	Ms. GR, 17 yo, P0A0	Not married yet	Abdominal pain	HWW syndrome (uterus didelphys, left hematosalping, longitudinal septal adhesions, left	Incision drainage and hemivaginal septectomy, fimbrioplast	Abdominal pain (-), menstruation (+)

No.	Identity	Marital status and history	Sign and symptoms before surgery	Diagnosis	Surgery procedure	Evaluation function of the reproductive organs after surgery
				renal agenesis)	y, adhesiolysis	
15.	Mrs. AR, 30 yo, P0A1	Married for 10 years	Abdominal pain, enlarged abdomen, unable to urinate	HWW syndrome (uterus didelphys, hematosalping dextra, vaginal septum with hematocolpos dextra, agenesis ren dextra), grade 2 obesity	Laparoscopic salpingostomy dextra, vaginal septectomy	Abdominal pain (-), menstruation (+), sexual intercourse (+), FSFI Score 26.1, ever been pregnant (+) after surgery

FSFI on married participants

The reliability test on the results of the FSFI questionnaire in this study was carried out through Cronbach's alpha value, with a value of 0.888. This shows that the questionnaire used has a good reliability value.

Table 3. FSFI based on the type of congenital abnormalities of the female reproductive organs

Types of congenital abnormalities	FSFI		Total	P
	Normal n (%)	Dysfunction n (%)		
Hymen	2 (100.00)	0 (0.00)	2 (100.00)	0.117
Vagina	3 (60.00)	2 (40.00)	5 (100.00)	
Uterus and vagina	0 (0.00)	1 (100.00)	1 (100.00)	
Total	5 (62.50)	3 (37.50)	8 (100.00)	

Based on table 3, sexual function was better in the group with hymenal abnormalities that underwent surgery. In vaginal disorders that are surgically treated, only 60% of the participants experience good sexual function, while the rest experience sexual dysfunction. Whereas in the uterine and vaginal abnormalities group, only one person experienced sexual dysfunction. Overall, there were 62.5% of participants experienced good sexual function, and 37.5% of participants experienced sexual dysfunction. However, this difference was not statistically significant—p = 0.117.

b. DISCUSSION

Surgery provides benefits to patients. This can be discovered in the improvement of abdominal pain, menstrual function, and sexual function experienced by patients after surgery. The surgical procedure performed depends on the type of congenital disorder of the reproductive organs of the patient. Two patients with hymenal abnormalities (microperforate hymen and cribiform hymen) underwent hymenectomy and hymenorrhaphy. They initially complained of infertility problems and were uncomfortable having sexual intercourse. Nine patients with vaginal disorders—6 patients with vaginal agenesis and 3 with cervicovaginal agenesis—underwent several types of procedures, namely drainage incision,

vaginoplasty dilatation, and sigmoid vaginoplasty. These patients initially complain of cyclic abdominal pain, and have never menstruated—primary amenorrhea.

Four patients with combined uterine and vaginal abnormalities were diagnosed with HWW syndrome accompanied by agenesis of one of the kidneys. In this group, the complaint that is felt is abdominal pain. One married patient in this group only found out about an abnormality during an examination related to his infertility.

Abdominal pain seems to improve, especially in the group with vaginal abnormalities (vaginal agenesis) who have a functional uterus. The same thing was found in patients with primary amenorrhoea who underwent surgery. Patients with Mullerian agenesis are usually identified when they are evaluated for symptoms of primary amenorrhea associated with pubertal development. Almost all of the participants' congenital reproductive organ abnormalities were discovered during puberty. Patients come with complaints of cyclical abdominal pain, no menstruation, or menstrual pain since the beginning of menarche which gets worse over time[5,13].

These symptoms and signs were felt by 12 patients with vaginal abnormalities and uterine and vaginal abnormalities who complained of abdominal pain every month. The pain disrupted activities, especially school. The other three participants found the abnormality during the post-marriage examination; the examination was carried out because of complaints of infertility and unable to have sexual intercourse. This complaint was shared by two participants who had hymenal abnormalities. They complain about infertility and sexual relations. This is in accordance with the statement of Passos and Britto[14] that women who experience problems related to reproduction, such as recurrent miscarriage, premature birth, and infertility, are often diagnosed with genital malformations during the examination of these symptoms. After surgery, there were no symptoms of abdominal pain.

Gatti et al.[15] in their study involving 43 MRKH patients who underwent colovaginoplasty surgery, explained that colovaginoplasty is the best option in managing vaginal agenesis and providing good general and sexual quality of life for patients. In this study, sigmoidvaginoplasty was also performed on 7 out of a total of 9 participants who had vaginal abnormalities (vaginal agenesis and cervicovaginal agenesis).

The outcome of sexual function after surgery was carried out using the FSFI (female sexual function index) assessment. FSFI value > 26.5 means no sexual dysfunction, and FSFI value < 26.5 means sexual dysfunction. The six factors included in the FSFI assessment are desire, sexual arousal (libido), lubrication, orgasm, satisfaction, and pain. The FSFI questionnaire has been validated into the Indonesian version by Pangastuti et al.[16].

FSFI in this study was conducted on 8 married people. Five people had a good FSFI score above 26.5, while 3 people experienced sexual dysfunction as indicated by an FSFI score < 26.5. The highest FSFI score was owned by 2 participants who had hymenal abnormalities and underwent hymenorrhaphy or hymenectomy surgery. This is because participants can have sexual intercourse after surgery. The FSFI score was also high in three other participants who had sigmoid vaginoplasty surgery.

Pain during sexual intercourse can be caused by residual vaginal tissue that has experienced fibrotic. In the participants who experienced a decrease in FSFI, several surgeries were performed, followed by vaginal dilatation with plugs. However, due to the difficulties that still exist during intercourse and the pain during independent dilatation, the patient finally decided to undergo sigmoid vaginoplasty. This is in line with research conducted by Callens[17] who found failure in 3 patients who underwent vaginal dilation and then stopped their therapy due to pain. These women experience pain and may have a rigid vaginal dimple or fibrotic upper vaginal opening. The important finding of Rall et al.[18] is that the total FSFI score in MRKH patients remained lower than the control group even after postoperative improvement.

Participants who experienced decreased FSFI also had low lubrication domain values compared to other participants. This can be helped by administering lubricating fluid. Participants who have low domain values have abnormal vaginal agenesis and undergo vaginoplasty surgery followed by the treatment using a vaginal dilatator. Tsarna et al.[19] said that this disorder may also be associated with greater pain and discomfort during sexual intercourse and limitations in arousal, lubrication, and orgasm.

In contrast, participants who underwent

sigmoid vaginoplasty had higher lubrication domain scores. Vaginoplasty using the sigmoid colon is a common technique for creating a neovagina. This technique is preferred over other intestinal segments because it satisfies the following criteria: self-lubrication, mucus production that is less of a problem than small bowel use, the tissue that grows with the child when used to create a neovagina before puberty, minimal risk of stenosis, tissue close to the perineum , easily mobilized vascular pedicles, and no molding or stenting is required[20].

The sigmoid vaginoplasty procedure is one of the surgical procedures chosen for the management of cases of vaginal agenesis. This technique produces a functional vaginal opening as an outlet for menstrual blood and sexual activity. Previous studies have found that sigmoid vaginoplasty provides good aesthetic, good sexual function results, and a low incidence of stenosis. Regarding previous research conducted at Dr. Sardjito General Hospital, 3 patients experiencing sigmoid vaginoplasty surgery have good post-surgery FSFI[21,22].

Sigmoid vaginoplasty surgery results in better satisfaction with no postoperative dyspareunia, dysmenorrhea, and results in a good cosmetic appearance with relatively low complications[22].

Some congenital disorders of the reproductive organs (Mullerian malformations) can be cured with surgery. The success of treatment depends on an accurate diagnosis and selection of the best technique. Vaginal agenesis can be treated with dilation or vaginoplasty. Since 2002, ACOG has recommended dilation as the first choice due to its high success rate and minimal complications[14]. Patients with vaginal agenesis have undergone several surgical procedures. The final surgical option is sigmoid vaginoplasty.

CONCLUSIONS

This study concludes that surgery can improve cyclic abdominal pain, menstrual function, and sexual intercourse in women with congenital abnormalities of the reproductive organs. Quality of life after surgery has improved as discovered from the improvement in organ function.

This study suggests that surgical counseling of patients with congenital abnormalities of the reproductive organs should be carried out, especially regarding the expected function and expectations of the patient. Research on the factors that affect the decline in sexual function after surgery should be investigated further.

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