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A clinical study on efficacy and acceptability of vaginal rejuvenation surgery at a tertiary health care centre

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Abstract
Introduction: Several procedures are included in female genital aesthetic surgery which target at getting improved female genital appearance and/or better sexual gratification. Amidst these procedures, vaginal rejuvenation is reviewed as one of the most debatable genital cosmetic operative interventions and includes a variety of surgical approaches performed by Plastic surgeons and Gynaecologists to reduce the diameter of vagina, mostly for sexual purposes. The main aim of this study was to evaluate the effect and acceptance of vaginal introitus tightening surgery amongst the reproductive women.
Methods: Perineoplasty was performed in 36 patients with perineal laxity over the period of 3 years and these patients were followed up till 1 year postoperatively. All the clients had detailed counselling regarding the operative procedure, the possible outcomes and the associated side effects. Preoperative investigations were done as per the hospital protocols and postoperative analysis was done by the patient's feedback.
Results: The functional results were seen in 89% of study population in terms of improved sexual satisfaction. The acceptability of the procedure was seen in 89 % patients associated with recommending the procedure to the friend. Postoperative Dysparunia was seen in 8% of the study group. However no major complication was seen in any patient in the 1 year follow up visits.
Conclusion: Perineoplasty can be considered as a promising technique for sexual satisfaction in patients with lax perineum with more or less no complications.

Keywords: Lax Perineum, Perineoplasty, Vaginal introitus tightening, sexual satisfaction

Introduction

Cosmetic surgery of the female genitalia is a much discussed subject of the modern era. Although it may appear as a newly coming up trend, but it has been around since ages [1]. It is being designed to enhance the look subjectively and possibly give psychological and functional satisfaction in sexual stimulation and contentment [2]. Female genital aesthetic surgery involves numerous operative procedures such as vaginal rejuvenation, labioplasty, vulvar liposculpturing, re-virgination with hymenoplasty and G-spot amplification. All these interventions are focused at betterment of female genital appearance and/or increased sexual satisfaction [3].

Recently, the female genital cosmetic surgeries, specifically vaginal rejuvenation has been accepted more in Western countries, not only by the health care providers but also among the female population. In a survey conducted in United States, the American Society of Plastic Surgeons documented a 30% increase in the vaginal rejuvenation procedures [4]. All these procedures are done mostly for cosmetic reasons or, in some cases to enhance the sexual gratification, with no clear medical indication. Mostly, vaginal rejuvenation is offered to females who have a sensation of wide vagina due to vaginal birth or aging to improve the vaginal tone. However the demand for vaginal introitus tightening surgery is much less in the third world countries like India due to social taboo. Yet with the increasing knowledge through media, internet and awareness, females from third world countries especially belonging to metropolitan cities are also coming forward at least for perineoplasty surgeries for lax perineum.

Vaginal laxity leading to sexual dysfunction is seen in many women of reproductive age group. Vaginal deliveries and increasing age are the main predisposing factors [5]. Other influencing factors include obesity, strenuous physical activity, and chronic cough [6]. Vaginal laxity following vaginal delivery is usually due to severe Perineal lacerations, inappropriately sutured episiotomy or decreased pelvic support [7]. In due consideration of the increasing age, sexual dysfunction, involving diminished libido, vaginal dryness and sense of inadequate orgasm is

common in 40% of these women [8]. Many operative and non-operative procedures have been proposed for the treatment of vaginal laxity, but there is no uniform approach to the treatment [9], [10].

There are various non-surgical procedures like local injections, implants including autologous fat, bulking agents, use of hyluronic acid and silicone [3], [11], [12]. However such implants are associated with risk of death in some cases due to non-thrombotic pulmonary embolism [13].

Vaginal introitus tightening surgery has been recorded in the mid-1950s, however no standard procedure is found until now [14]. Such techniques included an anterior and/or posterior colporrhappy, excision of the lateral vaginal mucosa or combination of various procedures to decrease the size or diameter of the vaginal canal which aimed at tightening the patulous vagina [1], [3], [15]. All these procedures are acquired from the classical gynaecological repair surgeries applied to cure the pelvic floor defects such as cystocoele, rectocele and enterocele [15].

This study was designed to assess the effectiveness and acceptability of vaginal introitus tightening surgery in patients with lax perineum along with their sexual satisfaction.

Methods

The study was conducted at a tertiary health care centre over a period of 3 years after ethical committee clearance dated 30 Dec 2020. It was a prospective observational study including 36 patients. A detailed history was obtained from these study participants, and they were thoroughly examined. Necessary preoperative investigations were done. A written informed consent was taken from all the study participants prior to the procedure explaining in detail the procedure, the results, the related complications and willingness to participate in the study. The Sexual Function was assessed by using a validated questionnaire- Female version of Golombok Rust Inventory of Sexual Satisfaction (GRISS) [16].

Inclusion criteria

Married women with lax perineum belonging to reproductive age group with no other concurrent surgical intervention willing to participate in the study. These study participants were well informed in advance about the technique, the expected results, the complications, the alternative non-surgical techniques and informed valid consent was taken from them.

Exclusion criteria

1. Women with Pelvic organ prolapse.
2. Women with urogenital infections.
3. Women with chronic constipation.
4. Women with chronic cough.
5. Women with urinary and anal incontinence.
6. Women with coagulopathy.
7. Pregnant women

Technique

The surgery was scheduled 2-4 days after menstruation. Preoperative preparation of the study participant was done according to hospital protocols. Prophylactic antibiotic was given half hour before the surgery intravenously and postoperatively antibiotic was continued for 5 days orally. The surgery was performed in lithotomy position under spinal or epidural anaesthesia. Anterior vaginal wall was elevated with a Sims speculum. Bilateral labial traction was given with transfixation sutures at 4 and 8 o'clock position to explore the vaginal fourchette. Two clamps were placed at the mucocutaneous junction on either side just outside the junction of the posterolateral vaginal sulcui with perineal skin. Then the entire mucocutaneuos junction between the two clamps was excised. Beginning from the midpoint of this incision, a vertical incision was taken by the surgeon separating the vaginal mucosa in the vaginal opening for about 3 cm. The redundant vagina on either side of vertical incision was separated from the underlying structures and excised. The soft tissues and underlying muscle were strengthened with 2-3 stitches through the levator ani muscle (Young's Stitch). Closure started at the upper triangle of vagina and ended at the edge of the hymen, similar to the episiotomy suturing. The perineal skin was then closed with fine absorbable suture material subcutaneously.

All the study participants were monitored for vitals, and any signs and symptoms of bleeding and haematoma formation after the surgery. The study participants were discharged in 24 hours after explaining them about perineal care and hygiene. Sexual intercourse was allowed after 4 weeks. These study participants were followed up for 1 year postoperatively. At their visits, the study participants were examined for any complications, enquiry was made regarding their sexual life and improvement in sexual satisfaction was assessed using the questionnaire.

Statistical Analysis

The data of the patients was collected, compiled and analysed using MS Excel worksheet. Statistical analysis was done by using percentages as the sample size was small.

Results

36 women enrolled in the study, continued their follow up visits for 1 year postoperatively. The following sociodemograhic parameters were studied in these patients:

Age distribution

All the patients from the reproductive age group were included in the study.

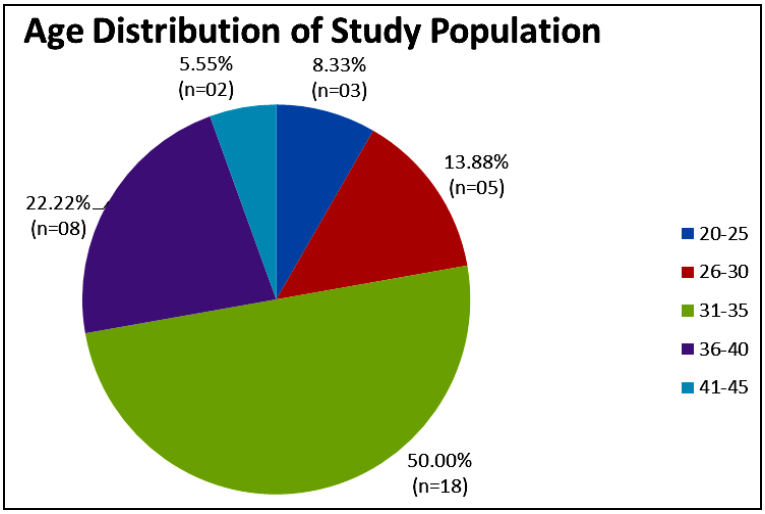

Fig 1: Age groups

According to Figure 1, the study population comprised individuals aged 20-45 years, with a mean age of 34 years. The 31-35-year age group constituted the highest representation among the participants.

Body max index

Obesity is considered to be one of the predisposing factors for perineal laxity.

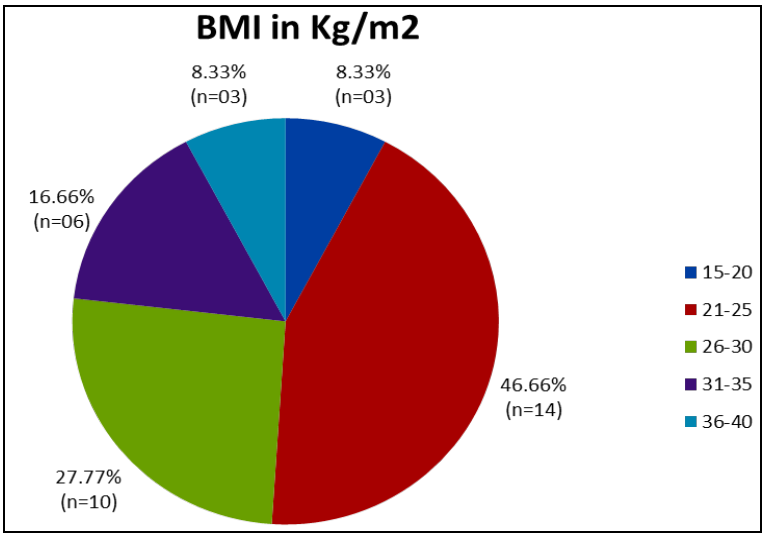

Fig 2: Body Mass index

As presented in Figure 2, nearly half of the patients (46%) had a BMI between 21-25 kg/m². The BMI values for the study group ranged broadly from 15 to 40 kg/m².

Parity

The number of times, the patient had given vaginal birth, plays a major role in vaginal laxity.

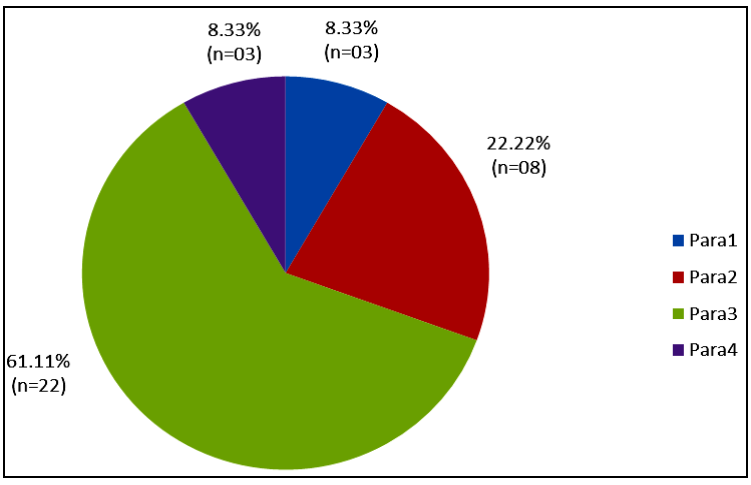

Fig 3: Parity of patients

According to Figure 3, the severity of vaginal laxity increased with higher parity, indicating a clear association between the number of deliveries and reported laxity

Mode of delivery

Vaginal laxity is significantly affected by the mode of delivery.

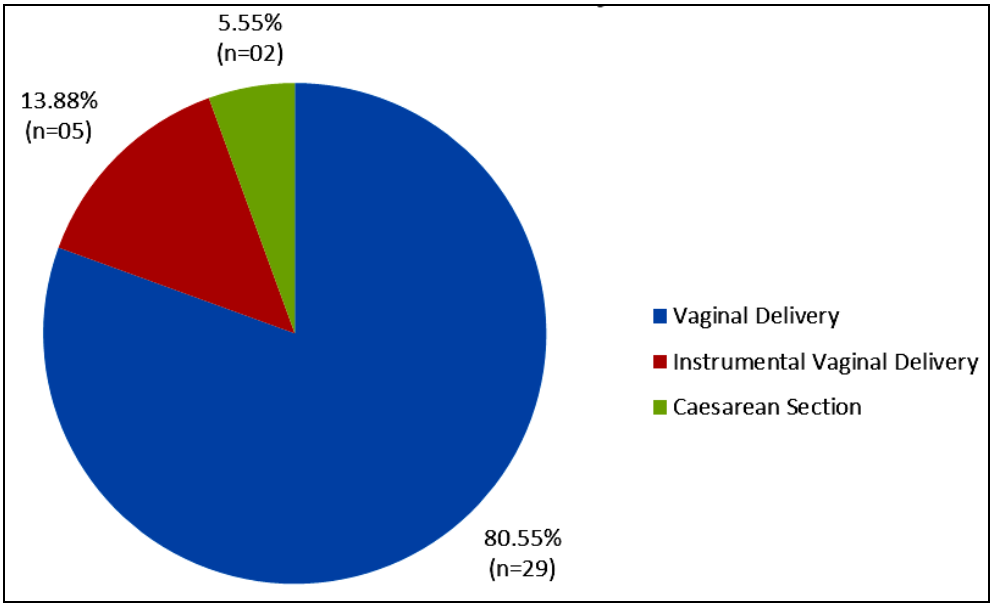

Fig 4: Mode of delivery

Figure 4 indicates that vaginal delivery, observed in 80% of patients, is the primary factor linked to the development of vaginal laxity.

Preoperative Genital Hiatus

The genital hiatus was measured from the middle of the external urethral meatus to the posterior margin of the hymen preoperatively.

Table 1: Preoperative genital hiatus measurement

Length in cm	No. of Patients (n=36)	Percentage
4.5-5.0	05	13.88%
5.1-5.5	18	50.00%
5.6-6.0	13	36.11%

According to Table 1, half of the study participants (50%) exhibited a genital hiatus measurement between 5.1 and 5.5 cm, with recorded measurements varying from 4.5 to 6.0 cm

Preoperative Perineal length

The perineal length was measured preoperatively from the posterior vaginal fourchette to the centre of the anal canal.

Table 2: Preoperative Perineal length

Length in cm	No. of patients (n=36)	Percentage
1.5-2.0	23	63.88%
2.1-2.5	13	36.11%

According to Table 2, a marked reduction in perineal body length was observed in patients with vaginal laxity.

Postoperative Genital Hiatus

Postoperatively genital hiatus was measured 4 weeks after the surgery, after that the couples were allowed for sexual intercourse.

Table 3: Postoperative Genital Hiatus

Length in cm	No. of patients (n=36)	Percentage
3.0-3.5	25	69.44%
3.6-4.0	11	30.55%

Table 3 illustrates a marked decrease in the genital hiatus dimension following the intervention

Postoperative Perineal length

Similarly the perineal length was also measured postoperatively.

Table 4: Postoperative Perineal length

Length in cm	No. of patients (n=36)	Percentage
3.0-3.5	14	38.88%
3.6-4.0	22	61.11%

According to Table 4, a substantial improvement in perineal body length was observed following the intervention.

Postoperative Dyspareunia

Vaginal introitus tightening surgeries are at times associated with postoperative dyspareunia.

Table 5: Postoperative Dyspareunia

Postoperative Dyspareunia	No. of patients (n=36)	Percentage
Yes	03	08.33%
No	33	91.66%

Table 5 indicates that approximately 92% of patients experienced no dyspareunia in the postoperative period.

Improvement in sexual function

Prior to the surgery 92 % (n=33) of the females had decreased vaginal sensation, 70% (n=25) reported difficulty in achieving orgasm and 25 % (n=9) did not experience orgasm at all. All these women had a feeling of wide vagina.

Improvement in Sexual satisfaction was analysed by asking following questionnaire to the study participants.

Table 6: Improvement in sexual function

Questionnaires	No. of patients (n=36)	Percentage
(A) Sexual activity gratification		
Improved	32	88.88%
Not Improved	04	11.11%
(B) **Expectation from the Surgery**		
Fulfilled	33	91.66%
Not fulfilled	03	08.33%
(C) **Sensation of Loose and wide vagina**		
Corrected	33	91.66%
Not corrected	03	08.33%

According to Table 7, 88% of the women reported substantial postoperative improvement in sexual activity, and 91% affirmed resolution of the perceived looseness and widened sensation of the vagina.

Furthermore, 91% of participants achieved orgasm after the procedure. However, three patients expressed dissatisfaction and reported regret regarding the procedure.

Recommend a friend

The acceptability of the procedure was assessed by the patient's willingness to recommend the procedure to her friend.

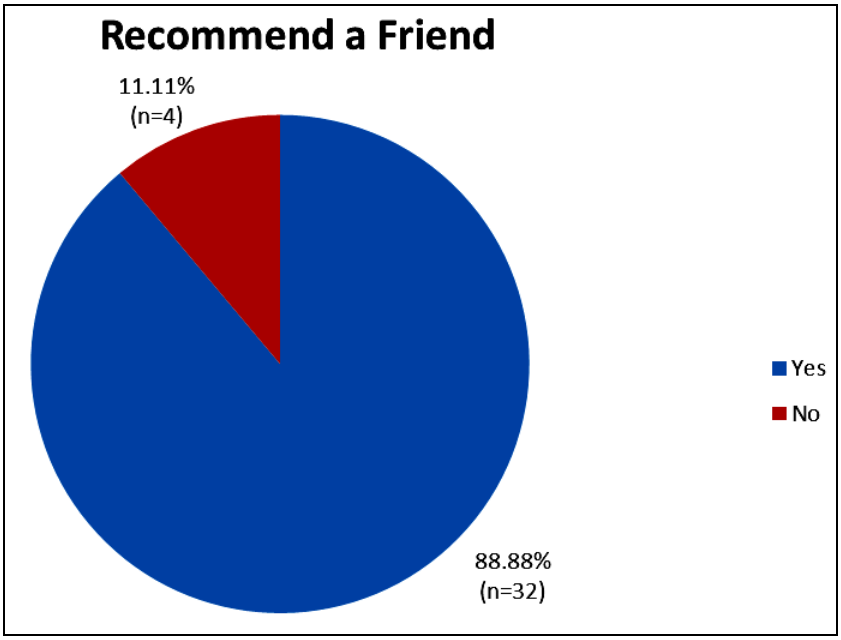

Fig 5: Recommend a friend

Figure 5 indicates that 88% of the participants expressed positive acceptance of the procedure, as demonstrated by their willingness to recommend it to others.

Notably, no complications—specifically vaginal dryness, vaginal or perineal restriction/fibrosis, or rectovaginal fistula—were encountered in this study population.

Discussion

The success of any procedure depends upon the understanding of the normal anatomical considerations and physiological function. Any procedure for vaginal introitus tightening surgery for aesthetic purpose or sexual pleasure, if not performed skilfully will lead to massive fibrosis and stiffness with rigidity. This study was designed to evaluate the efficacy and acceptability of a very simple technique (posterior colporraphy) of vaginal rejuvenation surgery on sexual gratification of study participants.

The age of the patient in the current study ranged from 20-40 years with the mean age of 34 years as observed in Figure1 1. This was comparable with a study done by Jamali S *et al* [17] where the mean age of the patients was 34.02 years with a standard deviation of 34.02±5.3 years. However in another study done by Mustafa Ulubay *et al* [18] the mean age of study population was 46 years with a range of 26-68 years.

BMI of the patients analysed in a study done by Mustafa Ulubay *et al* [18] ranged between 17.6 to 33.2 kg/m^2 with a mean of 25.3 kg/m^2. As seen in Figure 2, more patients in our study group had a BMI in the range of 21-25 kg/m^2 which is considered to be a normal BMI. Vaginal laxity is more commonly seen in overweight and obese patients. The normal range of the BMI in our study population was due to natural body habitus that is seen in the third world countries. Most of the women in third world countries have an average body weight resulting in normal range of BMI.

Vaginal laxity is associated with increasing birth order. In a study done by Abedi P *et al* [17] the average parity was 3.29±1.71. The parity ranged between 2-5 in a study done by Ulas Fidan *et al* [18] with a mean of 2.50. The current study showed a parity range from 1-4 with maximum patients having 3 children (Figure 3). Mode of delivery also affected the occurrence of perineal laxity. Vaginal delivery (80%) followed by Instrumental vaginal delivery (13.88%) was commonly seen in association with lax perineum in our study (Figure 4). 97.5% of patients had vaginal delivery and only 2.5 % had caesarean section in a study

done by Jamali S *et al* [17].

The socio-demographic profile of the study population provided important contextual insights into the factors influencing the decision to undergo perineoplasty. The majority of participants were within the reproductive age group, reflecting the typical onset of symptoms related to vaginal laxity following childbirth. Parity played a significant role, with higher-parity women demonstrating a greater tendency to seek surgical correction, likely due to cumulative pelvic floor strain. Overall, socio-demographic characteristics played a key role in shaping symptom perception, health-seeking behaviour, postoperative satisfaction, and the overall acceptability of perineoplasty

All the study participants, as mentioned underwent a simple, posterior colporraphy procedure alone for improvement in their sexual function.

Genital hiatus measurement was done preoperatively and postoperatively in the current study. Preoperatively the measurements ranged between 4.5-6.0 cm with a mean of 5.2 cm, where as postoperatively the same measurement ranged between 3.0-4.0 cm with a mean of 3.4 cm (Table 1 and 3). Mustafa Ulubay *et al* [18] in their study have recorded a mean preoperative genital hiatus measurement as 4.62 cm and postoperatively the average was 3.18 cm. Similarly, perineal length was also measured before and after the surgery. Preoperatively the perineal length ranged between 1.5-2.5 cm with a mean of 2.2 cm and postoperatively it was recorded between 3-4 cm with an average of 3.8 cm (Table 2 and 4). The average preoperative perineal length observed in the same study [18] was 3.06 cm and postoperatively it was recorded as 4.04 cm.

Postoperative dyspareunia was seen in 08.33% of the current study population (Table 5). This is comparable with a study done by Mustafa Ulubay *et al* [18] where 10% of study population had postoperative dyspareunia. Similarly, 25 % of patients showed postoperative dyspareunia after a vaginal repair surgery, in a study done by Francis J. A. *et al* [19].

The success of the procedure was assessed by the patient's sexual gratification. Improvement in the sexual function was observed in 88.88% of the present study population (Table 6 A). Similarly, sexual function enhancement was seen in 63% of study group in the first 6 months post operatively and nearly 100% after 18 months of surgery in a study done by Jamali S *et al* [17]. 87.79 % of the study group had better sexual gratification postoperatively in a study done by Mustafa Ulubay *et al* [18]. In another study, done by Adamo C. *et al* [9], cosmetic mucosal vaginal tightening also produced improvement of erotic sensitivity in 95 percent of the patients undergoing the procedure. Six months after the study, 94% patients experienced a tighter vagina and had sexual satisfaction as observed in a study done by Edris A.M. *et al* [14].

Nearly 91% of study participants reported satisfaction with the surgical procedure with their expectations being met with the surgery (Table 6: B) and similar patients reported a correction in the loose and wide sensation of the vagina (Table 6: C). This can be compared with a study done by Pardo J.S. *et al* [10] where 74 % reported their expectations being met with the vaginal tightening surgery and 96% approved correction in their loose and wide sensation of vagina.

Postoperatively, 91 % reported achieved achieving orgasm postoperatively which can be compared to various other studies [9,10,14,17,18].

The acceptance of the procedure was analysed by the patient's recommendation of the procedure to a friend or colleague. 88% of our study population accepted that they would definitely recommend the procedure to a friend/ colleague (Figure 5). However, a study done by Mustafa Ulubay *et al* [18] documented that 87.92 % of patients would recommend the procedure.

Conclusion

Perineoplasty for lax perineum is associated with high patient satisfaction with more or less no complication.

The merits of this procedure are as follows:

1. Low dyspareunia rates.
2. Minimal or negligent complication rates.
3. High patient sexual satisfaction.
4. Satisfactory anatomical outcome.

The limitations of this study are

1. Small sample size as this procedure is not accepted socially and done routinely independently for female vaginal rejuvenation for sexual gratification in developing countries.
2. Lack of available data on the subject.

While studies in the future may analyse the long term effects, the present article proposes that perineoplasty can offer a safe, effective and easy technique of attenuating the sensation of lax perineum.

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