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## Research Article

### Effect of Craniotomy Without Shaving on Patient Mood

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## Summary

**Background:** Shaving before cranial surgery has been a common practice for many decades. Most of the studies were about the infection rates, but there is a few data about the effect of shaving on patient mood. The aim of this study was to determine the effects of not shaving when performing a craniotomy on the mood of the patients.

**Methods:** Patients who underwent a craniotomy between September 2010 and September 2011 and agreed to complete a questionnaire after the surgery were included in the study.

**Results:** 207 patients included in the study. The mean age of the patients was  $44.51 \pm 18.00$  years. 114 patients (55.07%) did not think about shaving when they first learned they would undergo a craniotomy; 133 (64.2%) did not ask their surgeons about being shaved during the craniotomy. 30 patients (14.4%) pointed out that not being shaved was an important factor in choosing the surgeon. Nineteen (9.1%) patients complained about the wide scar tissue and alopecia.

**Conclusion:** Not shaving is a strong factor that affects the time necessary to get back to one's routine and orientation to social life after craniotomy without increasing infection rates. However, it is not a factor that affects the patient's choice of doctors.

**Key words:** Craniotomy, infection, neurosurgery, patient mood, shaving

### Saç Kesilmeden Yapılan Kraniyotominin Hasta Ruh Durumuna Etkisi

## Özet

**Amaç:** Kraniyal ameliyatlardan önce hastanın saçlarının kesilmesi çok uzun yıllardan beri uygulanan genel bir uygulamadır. Bu konuda yapılan çalışmaların çoğu enfeksiyon oranı üzerinedir; ancak hastaların duygu durumlarına yönelik çok az çalışma bulunmaktadır. Bu çalışmanın amacı saç kesilmeden yapılan kraniyotomilerin hasta duygu durumu üzerine etkilerini araştırmaktır.

**Yöntem:** Eylül 2010 ve Eylül 2011 tarihleri arasında kraniyotomi uygulanan ve cerrahi sonrası anket formunu doldurmayı kabul eden hastalar çalışmaya dahil edilmiştir.

**Bulgular:** 207 hasta çalışmaya dahil edilmiştir. Hastaların ortalama yaşı  $44.51 \pm 18.00$  yıl idi. 114 hasta (55.07%) ilk olarak kraniyotomi uygulanacağını öğrendiğinde saç kesilmesi hakkında düşünmemişti; 133 (64.2%) kişi cerrahlarına kraniyotomi sırasında saçlarının kesilip kesilmeyeceğini sormamıştı. 30 hasta (14.4%) saç kesilmemesinin cerrahlarını seçmede önemli bir etken olduğunu belirtti. On dokuz (9.1%) hasta geniş skar dokusu ve alopesiden şikayetçiydi.

**Sonuç:** Saç kesilmemesi kraniyotomiden sonra enfeksiyon oranlarını arttırmadan kişinin sosyal hayata oryantasyonunu ve rutin hayatına dönme süresini kısaltan önemli bir faktördür. Bununla beraber hastaların doktor seçimini etkileyen bir faktör değildir.

**Anahtar Kelimeler:** Enfeksiyon, kraniyotomi, nöroşirurji, ruh durumu, saç kesilmesi

## INTRODUCTION

Hair shaving before cranial surgery has been a common practice for many decades. The main concern for hair removal is the prevention of surgical wound infection; however, the literature data regarding this issue is conflicting. Few studies have been conducted without shaving that show a reduction in wound infection rates in patients undergoing craniotomy<sup>(3,9)</sup>. Quite the reverse, shaving may, in fact, facilitate bacterial colonization and wound infection<sup>(13)</sup>.

In the modern world, quality of life after a surgery has gained great attention, but there is limited data in the literature about the effects of shaving on the social lives and mood of patients<sup>(4,8)</sup>.

The aim of this study was to determine the effects of not shaving when performing a craniotomy on the mood of the patients.

## MATERIAL AND METHODS

Patients who underwent a craniotomy between September 2010 and September 2011 and agreed to complete a questionnaire after the surgery were included in the study. Pediatric patients' questionnaires were completed by their parents/guardians. The study was approved by the Institution's Research Ethics Committee (2010-9/7). Written informed consent was obtained from all patients (or parents/guardians) completing the questionnaire.

In this study categorical variables was expressed with frequency and percentage. Answers according to sex differences was compared among groups by chi-square test. Sub group analysis for ages of the participants performed by using Mann Whitney test.  $P < 0.05$  was set at statistical significance and SPSS 20.0 was used for performing statistical analysis.

## RESULTS

Of the 207 patients included in the study, 111 (53.6%) were male and 96 (46.3%) were female. The mean age of the patients was  $44.51 \pm 18.00$  years (min 7, max 85 years). One hundred and fifty-one (72.9 %) were married, and 56 (27.05%) were single. Regarding education, 135 (65.2%) of the patients finished or were going to elementary school, 58 (28%) were in high school, and 13 (6.2%) graduated from university (Table 1). Sixty-six (31.8%) of the patients were housewives, 36 (17.3%) were pensioners, and 32 (15.4%) were workers (Table 2). Most of the patients (114 [55.07%]) did not think about shaving when they first learned they would undergo a craniotomy; 133 (64.2%) did not ask their surgeons about being shaved during the craniotomy (Table 3). When asked, "were you nervous about shaving?" 41 of the 158 (25.9%) patients marked "yes"; 117 (74%) did not feel nervous about shaving. Although a small number of patients (30 [14.4%]) pointed out that not being shaved was an important factor in choosing the surgeon, 177 (85.4%) of the patients did not pay attention to this point. If the surgeon insisted on shaving, 194 (93.7%) of the patients did not think about changing surgeons.

There were five (2.4%) cases of wound infection. In case of infection, bacteriological cultures were performed, followed by an appropriate antibiotic treatment. Nineteen (9.1%) patients complained about the wide scar tissue and alopecia.

There is statistically significance difference between sexes in responses to two questions. Not shaving make male participants returning to social life easier when compared to female participants ( $p = 0.001$ ). Men preferred not to be shaved in case of they were reoperated ( $p < 0.001$ ). There is no difference for sex at other answers (Table 4).

**Table 1:** Demographic data of the patient group

Demographic data	Mean ( $\pm$ SD)	Range
Age	44.51years ( $\pm$ 18.00)	7–85 years
	<b>Number</b>	<b>Percentage</b>
Gender		
Male	111	53.6
Female	96	46.3
<b>Socioeconomic Characteristics</b>		
<b>Marital status</b>		
Single	56	27.05
Married	151	72.09
<b>Education</b>		
Primary school	135	65.2
High school	58	28
College	13	6.2

**Table 2:** Occupation of patients

Occupation	Number	Percentage
Housewife	66	31.8
Pensioner	36	17.3
Worker	32	15.4
Student	25	12.0
Employee	20	9.6
Farmer	10	4.8
Private	10	4.8
Unemployed	8	3.8

**Table 3:** Second part of questionnaire

When you learned that you had to be operated on, did you think about your hair being cut? (If your answer is No, then go to question 9)		
Yes	93	44.92
No	114	55.07
Did you point out your opinion to your surgeon?		
Yes	27	16.26
No	133	83.12
Did the possibility of shaving bother you?		
Yes, I may feel shy in front of my family	17	10.7
Yes, I may feel shy in front of my office	5	3.1
Yes, I may feel shy in front of my friends	19	12.02
It does not matter	117	74.05
Shaving or not shaving may change your decision about choosing a surgeon. Did you pay attention to this subject when you chose your neurosurgeon?		
Yes	30	14.4
No	93	44.9
I did not think about this subject	84	40.5
If the surgeon insisted on shaving, would you think of changing your surgeon?		
Yes	13	6.2
No	194	93.7
If shaving or not shaving was your choice, what was your answer?		
Shave	24	11.5
No shave	60	28.9
Does not matter	123	59.4
When you did not have your hair cut, did you think that there could be any health problem (infection, etc.) during the operation or recovery period?		
Yes	34	16.4
No	96	46.3
No idea	77	37.1
If your answer is yes, did you talk about this with your surgeon?		
Yes, he persuaded me	22	17.3
Yes, I talked but I am still suspicious	3	2.3
No, I did not talk	102	80.3
Did not shaving make your return to social life easier?		
Yes	101	49.7
No	20	9.8
Does not matter	82	40.3
How did not shave affect your family?		
Positively	103	50.2
Negatively	5	2.4
No effect	97	47.3
What was the reaction of your colleagues?		
Positive	90	44.3
Negative	2	0.9
Undefined	111	54.6
If you had to have another operation, would you prefer not shaving?		
Yes	104	50.2
No	66	31.8
No idea	37	17.8
Did you get any information about shaving or not shaving before the operation?		
Yes	58	28.1
No	94	45.6

No idea	54	26.2
Did you have any problem with your hair care after the operation?		
Yes	28	13.5
No	173	83.5
No idea	6	2.8
Did you have any problem with your wound after the operation?		
Yes, infection	5	2.4
Yes, alopecia and wide scar	19	9.1
No	168	81.1
No idea	15	7.2

**Table 4:** Analysing of answers according to sex

	male (n=111)	female (n=96)	p-value
When you learned that you had to be operated on, did you think about your hair being cut? (yes)	53(47)	40(41.7)	0.380
Did the possibility of shaving bother you? (yes)	24 <sup>1</sup> (30)	17 <sup>1</sup> (21.8)	0.320
Shaving or not shaving may change your decision about choosing a surgeon. Did you pay attention to this subject when you chose your neurosurgeon? (yes)	12(10.8)	18(18.8)	0.156
If the surgeon insisted on shaving, would you think of changing your surgeon? (yes)	6(5.4)	7(7.3)	0.787
If shaving or not shaving was your choice, what was your answer? (shave)	74(66.7)	73(76)	0.184
When you did not have your hair cut, did you think that there could be any health problem (infection, etc.) during the operation or recovery period? (yes)	18(16.2)	16(16.7)	1.000
Did not shaving make your return to social life easier? (yes)	67(60.4)	34 <sup>2</sup> (37)	<b>0.001</b>
How did not shave affect your family? (positive)	85 <sup>3</sup> (77.3)	68 <sup>3</sup> (71.6)	0.350
What was the reaction of your colleagues? (positive)	53(47.70)	37 <sup>2</sup> (40.2)	0.282
If you had to have another operation, would you prefer not shaving? (yes)	69(62.2)	35(36.5)	<b>&lt;0.001</b>
Did you get any information about shaving or not shaving before the operation? (yes)	27(24.3)	31 <sup>4</sup> (32.6)	0.186
Did you have any problem with your hair care after the operation? (yes)	14(12.6)	14(14.6)	0.834
Did you have any problem with your wound after the operation? (yes)	10(9)	14(14.6)	0.302

<sup>1</sup>: for male n=80/for female n=78, <sup>2</sup>: for female n=92, <sup>3</sup>: for male n=110/for female n=95, <sup>4</sup>: for female n=95

## DISCUSSION

There are many papers about the pros and cons of not shaving gynecology and obstetric patients, regarding the challenging preoperative hair removal; however, there are few studies about the

effects of not shaving on the mood of patients undergoing craniotomy<sup>(6,10)</sup>.

In modern surgery, shaving to prevent infection is just a myth. There is no scientific basis for preoperative shaving of hair-bearing incision sites<sup>(5,12)</sup>. Nonetheless, shaving is still preferred by

many surgeons. Wound infection rates in non-shaved cranial surgeries are no worse than those of shaved cases<sup>(3,12)</sup>. Preoperative shaving of surgical incision sites, especially using a traditional surgical blade, as compared with hair clippers, has been shown to be injurious to the epidermal layer of the operation site and has been postulated to promote postsurgical infections rather than preventing them<sup>(2,11,12)</sup>.

Most neurosurgeons prefer shaving the entire scalp; some shave 1.5–2 cm beyond the margin of the incision. Ratanalert et al. studied the effect of the timing of shaving on infection rate. They found the same scalp bacterial colonization and surgical site infection rates for patients being shaved on the day of surgery and those shaved a few minutes before surgery in the operating theater<sup>(7)</sup>. In this study, we detected five wound infections out of 207 craniotomies (2.4%). All the infections were local and treated by oral or local antibiotics; no wound debridement was needed. The most common complaint was alopecia (n:19). All cases of alopecia were at the incision area, with a width of approximately 1 cm. There were no cases of alopecia totalis. In fact, it was scar tissue, and there were more than 19 patients with this “alopecia,” but only 9.1% of the patients complained about this issue. This was probably because of the expectations of the patients. Providing the patients with details about the surgery and knowledge of not shaving during the preoperative assessment might have created this expectancy.

There were few patients with hair care problems, which indicates that most of the patients who did not have an idea about alopecia or infection had no hair care problems.

Forty-five percent of the patients (44.92%) cared about their hair when they first heard the possibility of cranial surgery; however, only a few shared their concerns with their surgeons. Only 30 patients paid attention to

the attitude of their surgeons toward shaving when making their choice. Less than half of the patients insisted on not shaving if the surgeon recommended shaving. The success and reliability of the neurosurgeon were more important factors that affected their choices.

The disease itself was more important than feeling shy for most of the patients. It is interesting that most of the patients did not care about their hair. This could be because of the low socioeconomic status of the patient profile or patient awareness about their disease and care about it.

The patients pointed out the value of not shaving in their work, social, and family lives. This could be the result of our patient profile, because half of the patients were housewives, pensioners, and unemployed persons. There were only 25 students and 52 patients who had regular jobs and might have cared more about their appearances.

The results of non-shaving data in the literature are independent of the length or type of the hair<sup>(1)</sup>. There were no curly, crimped, or densely knotted African-type hair in our patients; our patient group's hair was actually quite long.

Data obtained from our questionnaire showed that education was not a factor in caring about their looks. More than half of our patients had graduated from or were going to primary school.

Unexpectedly shaving affects male participants' social life more than female participants and they preferred not to be shaved in case of reoperation. This situation can be explained by patriarchal characteristic of society.

There is no previously used accepted questionnaire about patient satisfaction in Turkish, so this questionnaire is unique and designed by the authors with the help of previous literature on patient satisfaction.

## CONCLUSION

Not shaving is a strong factor that affects the time necessary to get back to one's

routine and orientation to social life after craniotomy without increasing infection rates. However, it is not a factor that affects the patient's choice of doctors.

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