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Clinical Pattern of Abnormal Scars; a Prospective Study

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ABSTRACT

Abnormal scars are related to great symptomatic and cosmetic distress to patients and subject of vital interest for surgeon who treats them. Abnormal scar are reported to prone for particular risk factors like young age, bony prominences, blood group and family history. This study aims to determine the incidence and risk factors of hypertrophic scar and keloid and to prepare recommendations for prevention of pathological scars. A prospective analysis is conducted on Patients admitted in department of burn and plastic surgery, department of general surgery from October 2012 -December 2013 at Hamidia Hospital, Bhopal.

Data was collected and compiled by consulting the patient's clinical notes during their initial hospitalization and during outpatient clinic visits. These observations also may be indicative of a genetic basis to abnormal scarring which further promote for genetic studies in scars to develop future diagnostic and therapeutic regimes.

KEYWORDS : Hypertrophic scar, keloid.

INTRODUCTION-

For decades, prevention and correction of excessive scar tissue formation has long been a subject of vital interest to the surgeon, but high incidence, absence of any satisfactory method of treatment, a high postoperative recurrence rate and great symptomatic and cosmetic distress to the patient is of major concern for most of the surgeons who treat the Keloid and hypertrophic scar. Especially in the head and neck region, these lesions are conspicuous and not easy for patients to conceal. Patients typically present with cosmetic concerns, although hypertrophic scars and keloid can also cause pruritus, pain, or pressure[1]. A total of 100 million patients develop scars in the developed world alone each year as a result of 55 million elective operations and 25 million operations after trauma [2].Our study is focused to determine the incidence of hypertrophic scar and keloid in general population and to investigate the risk factors responsible to update clinical and experimental information on abnormal scars so that physicians can better understand and properly treat such lesion.

METHOD-

A prospective analysis is conducted on Patients admitted in department of burn and plastic surgery, department of general surgery and paediatrics surgery for operative procedure from October 2012 -December 2013 at Hamidia Hospital, Bhopal. A standard Proforma was used to collect and compile data by consulting the patient's clinical notes during their initial hospitalization as well as the details recorded during outpatient clinic visits and/or subsequent hospitalizations. Patients were given a weekly clinical examination until the second month after complete reepithelialisation, and from the third month, on average, they were visited monthly until the sixth month.

OBSERVATION-

This is a prospective analysis of the clinical records of 100 Patients admitted in department of burn and plastic surgery, department of general surgery, cardiothoracic-vascular surgery and paediatrics surgery procedure from October 2012 -December 2013 at Hamidia Hospital, Bhopal.

The tables below depict the observations and result obtained in this study-

TABLE NO. 1-
SHOWING AGE DISTRIBUTION

	scar type			Total
Age group	hypertrophic	keloid	Normal scar	
<10	0	0	22	22
10_19	14	1	7	22
20_29	19	7	5	31
30_39	9	2	3	14
40-49	5	1	3	9
≥50	1	0	1	2
Total	48	11	41	100

TABLE NO 2-
SHOWING SEX DISTRIBUTION

sex hypertrophic		scar type			Total
		keloid	Normal scar		
	female	31	7	17	55
	male	17	4	24	45
Total		48	11	41	100

TABLE NO 3-
SHOWING ETIOLOGICAL DISTRIBUTION

Scar followed	scar type			Total
	Hypertrophic	keloid	Normal scar	
Burn	12	10	3	25
Pediatric surgery	0	0	25	25
CTVS	24	0	1	25
Surgery	12	1	12	75
Total	48	11	41	100

TABLE NO 4-
SHOWING ANATOMICAL DISTRIBUTION

Scar followed	scar type			Total
	Hypertrophic	keloid	Normal scar	
Burn	12	10	3	25
Pediatric surgery	0	0	25	25
CTVS	24	0	1	25
Surgery	12	1	12	75
Total	48	11	41	100

TABLE NO 5-
SHOWING DISTRIBUTION OF SCARS AMONG BLOOD GROUPS

Hypertrophic		scar type			Total
		Keloid	Normal scar		
	A+	13	7	4	24
	AB+	5	0	7	12
	B-	0	0	2	2
	B+	14	2	11	27
	O+	16	2	17	35
Total		48	11	41	100

TABLE NO 6-
SHOWING INCIDENCE OF POSITIVE FAMILY HISTORY IN ABNORMAL SCARS

Family history Hypertrophic		scar type			Total
		Keloid	Normal scar		
	absent	45	9	41	95
	present	3	2	0	5
Total		48	11	41	100

TABLE NO 7-
SHOWING DISTRIBUTION OF SCARS ACCORDING TO SKIN COLOUR (AS PER FITZPATRICK SCALE GRADING)

Hypertrophic		scar type			Total
		Keloid	Normal scar		
Fitz-patrick Scale grading	grade 5 dark brown	7	2	10	19
	grade 4 moder-ate brown	32	6	14	52
	grade 2 fair	9	3	17	29
Total		48	11	41	100

DISCUSSION-

This study aims to provide an overview of epidemiology and risk factor for Keloid and hypertrophic scars.

This is a prospective analysis of the clinical records of 100 Patients admitted in department of burn and plastic surgery, department of general surgery, cardiothoracic-vascular surgery and paediatrics surgery from October 2012 -December 2013 at Hamidia Hospital, Bhopal**.**

Out of 100 patient's, majority of patients were having hypertrophic scar 48%, while only 11% patient's had keloid and 41% had normal scar.

In our study majority belong to age group 10-30 years i.e. 53 (53%) patients followed by 23 (23%) patients between age group 30-50.This correlates with study done Davies et al (1985)[3] who explained this fact by stating that younger individuals are more frequently subjected to trauma and their skin is more elastic than the skin of elderly persons.

Our study have 55 females and 45 male patients out of which 38 (69.09%) females and 21 (46.6%) male patients had abnormal scars while Espana et al (2001)[4] reported 1:3 male: female ratio i.e. female preporderance for development of keloid.

In this study group there was no abnormal scar after surgery in paediatric age group, where after cardio thoracic surgery 24 (40.6%) abnormal scar , after burn are 22 (37.2%) ,and in general surgery 13 (22%) abnormal scars are found shows that most common aetiology for Hypertrophic scar found is surgery followed by burn and most common aetiology for keloid is burn.

Carney et al (1994)[5], Eisenbeiss et al(1998)[6] Shakespeare et al (1993)[7] studied that hypertrophic scars tend to originate from surgery and thermal injuries such as burns.

In our study most common site for hypertrophic scar and keloid is chest (50.4%) followed by trunk 11(18.6%) while Crockett (1964)[8] , Marneros et al (2001)[9] describes that hypertrophic scars are known to develop at any location; keloid scars commonly affect chest, shoulder and ear lobe regions, which are areas under low skin tension.

In our study total 35 patients had O^+ blood group out of which abnormal scarring found in 18 (30.5%) patients, followed by A^+ blood group was found in 27 patients having abnormal scarring in 20 (33.8%) patients followed by B^+ where total number of patients were 27 and having abnormal scars in 16 (27.1%) this shows that Most common blood group found in patients with abnormal scars is A positive while Ramkrishna et al (1974)[10] also reported predisposition of blood group A^+ in keloid formation.

In this study only 5 (5%) reported positive family history out of which 3 (5.08%) had hypertrophic scar and 2 (3.3%) had Keloid while Bayat and colleagues reported that more than 50% of all keloid patients had a positive family history of keloid scarring, and family history was strongly associated with the formation of keloid scars in multiple sites as opposed to a single anatomical site.

Marnerros et al (2001)[9] studied two families with an autosomal dominant inheritance pattern of keloids and identified linkage to chromosome 7p11 and chromosome 2q23 for the African and Japanese family, respectively.

Ramakrishna et al (1974) in his study reported that 1.9% patients presents with familial tendency for keloid formation[10].

that in study 19 patients of dark brown(Grade 5), 52 patients of wheatish or moderate brown (Grade 4) and 29 patients of fair complexion (Grade 2) were recorded, in these 9 (15.2%) patients of dark, 38 (64.4%) of wheatish and 12 (20.3%) patients of fair complexion found to have abnormal Scarring. Wheatish complexion (grade 4) patients mostly had hypertrophic scars and Keloid.

Alhady SM et al (1969)[11] describes that the fact that keloids are 15 times as likely to occur in darker skinned individuals points to genetic influences.

Moustafa MF et al (1975)[12] describes that keloid formation mainly occurs in parts of the body with high concentrations of melanocyte, and it is rare on the soles and palms. Keloid formation has also been associated with endocrine factors.

CONCLUSION-

In our study group, we have concluded that:-

Abnormal scar is most common in younger age group i.e. 20-30 years.

Female sex is more susceptible for developing abnormal scars although majority of patients in study group were male.

Most common abnormal scar after surgery is found to be hypertrophic scar while after burn it is keloid. Hypertrophic scar as well Keloid both are more susceptible to occur in chest followed by trunk.

Dark complexion population is more prone for developing abnormal scars as in our study Fitzpatrick Scale grade 4 (Wheatish or moderate brown) complexion patients reported to have maximum number of abnormal scar.

People living in rural areas with low socioeconomic status are more susceptible for developing abnormal scars.

Positive family history found to be important factor for development of abnormal scars along with patients having A positive blood group.

It has been observed in our study that almost all patients having abnormal scarring are symptomatic in any form with pruritus found to be most common symptom.

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