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Research Article

**AN ASSESSMENT OF SUCCESS RATE OF BILATERAL SEVEN  
MILLIMETER (7 mm) MEDIAL RECTUS DEPRESSION &  
DECLINE FOR INCREASED ESODEVIATION OF ANGLE**<sup>1</sup>Dr. Ghalia Asrar, <sup>2</sup>Dr. Wajahat Ali Khan, <sup>3</sup>Dr. Ghazanfar Abbas<sup>1</sup>Woman Medical Officer, THQ Pattoki, Kasur<sup>2</sup>Medical Officer DHQ Teaching Hospital DG Khan.<sup>3</sup>Children Hospital and institute of child health Multan**Abstract:**

**Objective:** This study aims to take an estimate of success among the patients who are undertaking bilateral seven millimeters (7 mm) medial rectus decline and depression for greater esodeviation of the angle.

**Methodology:** This research completed at Sir Ganga Ram Hospital, Lahore and extended over the time period from June 2016 to September 2017. Every patient under the fifteen years of age showing with opposed isotropic with a deviation of sixty prism diopter (PD) and many of them enrolled for bilateral medial rectus recession operation. We performed front section slit lamp clinical investigation and back section examination with (90) D and (78) D fundoscopies in recommended cases. We also measured the angle of deviation. We considered all necessary examination. We adopted general anaesthesia for the surgical procedures. We also observed the follow-up session after operations.

**Results:** We successfully conducted near about (71%) children surgeries and the residual deviation was (< 15) PD, whereas, (29.0%) patients reported residual strabismus. Research findings reported around four patients with external body granuloma. On the other hand, two patients developed hindrance in adduction. Sixty PD deviation presented better outcomes along with a residual deviation (< 15) PD.

**Conclusion:** The reports of this research make the case that guarded muscle correction is inevitable in the ongoing process of two-sided medial rectus collapse for the progress in visual alignment and binocular operational functions.

**Keywords:** Medial Rectus Recession, Pediatric Esotropia and Deviation.

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**INTRODUCTION:**

Strabismus is a name of disorder as a result of ocular misconfiguration causing to divergence of visual axis from bi-fovea fixation. Physicians are commonly experiencing it in ophthalmology. This disorder has prevailed around the global. Its statistics are ranged from (3% - 5%) [1, 2]. Moreover, worldwide statistics claimed strabismus in (2% - 4%) of white people and (0.6 %) among Asians and Africans [3]. Donnelly and his research participants claimed the statistics of (3.98%) in his research [4]. Whereas, a research in Australia (Sydney) reported forty-eight (2.8%) cases of strabismus of the entire population [5]. A researcher conducted a study in the locality of Peshawar in 2004 on the prevalence of strabismus that was two percent [6]. A similar study, on Afghan refugees in Pakistan, reported (1.4%) strabismus [7]. In the treatment and administration of issues regarding strabismus, doctors conduct a proper examination, medication and cure of amblyopia, corrective measures and surgical operations. Dr J. Friederich was the pioneer, who conducted first cross-eyed surgical operation in 1839 [8]. Physicians recommend the surgery for the alignment of oculi of the visual axis when conventional cure and treatment do not work. Surgery is the only substitute in such conditions. Surgical treatment has brought astonishingly great results in this field. Surgeons recommend it because, it removes the double pictorial vision in patients, restore their three-dimensional vision, visual axis enjoys ocular alignment, patients can have more widen the visual field, subjects come up with more psychological status and outer space [9]. In the routine and normal surgeries for esotropia, physicians manage monocular depression of clinical rectus by resecting the lateral rectus or they may go for the double depression of medial recti. Doctors put emphasis on surgery, especially for the patients who report with a great esodeviation angle, that is more than (50) PD. They acclaim the surgery on farther than (2) horizontal recti. A similar research by Von Noorden and his companions proposed (7) mm dual medial rectus depression and recession or beside conducting the surgery on three or more muscular tissues [10, 11]. Some clinical researchers believe that in strabismus surgical operations over the alignment of the ocular muscles is a residual deviation up to (10) PD or less [12]. Moreover, in this research, we considered the under correction of residual deviation up to (15) PD as well as the less than this.

**METHODOLOGY:**

This research encapsulated the survey of clinical practices and analysis on the patients who are associated with the disorder of esotropia for the

initial appearance. We examined the patients of both sex-males and females. This research extended over the time period from June 2016 to September 2017.

We included all the patients, who reported twice prior to their surgery. Furthermore, we recommended the cases who were suffering from regular concomitant esotropia with an eccentricity of (60) prism diopters and above.

We did not include those patients who had deflective reconciling esotropia (manageable with spectacles). We even did not include the history of partial paralysis or limiting muscle element, Mycostatin and previous strabismus surgery in this study.

We seek informed written consents from all the research participants. After that we assessed the patients in the following procedure:

Firstly, we assessed the general history of the patients containing their age, gender, area of accommodation, affected eye and use of curative spectacles-singles and bi-focal. We seek the past photographs of the patients who were less than five years of age. We asked their parents to provide such photographs so that we could maintain not to include the progressive elements in the study.

We used Snellen's chart and E-chart for the children patients who were not yet admitted to schools to examine the visual insight for dominating and deprived (squinting) eye. Moreover, we applied slit lamp biomicroscopy and tonometry in such cases where it was practicable. We observed opened indirect ophthalmoscopy by (90) D and (78) D fundoscopies in recommended and typical cases. We determined ocular movement, among the cooperative patients, comprising of ductions and versions.

We conducted the modified Krimsky test for the patients who were less than five years old and measure the deviation in prism diopter by considering distant and close vision as a prism. Additionally, we performed a test for far and near distance that has better visual acuity. Among the children who had a change of direction due to cycloplegia, we used (1%) cyclopentolate eye drops and we did not include the element of the accommodative component which was greater than (2.0) diopters hyperopia before operations.

All those patients who were admitted in the hospital for the surgery for strabismus, we prepared the history of their blood in the form of an overall picture, in-depth urine evaluation, bleeding and the time to form clotting, and the X-Rays of their chests

prior to their surgery. Specialists observed the strabismus surgery of the children by adopting general procedures of anaesthesia. During the surgery, we adopted the procedure comprising (7) mm bilateral medial rectus depression. Moreover, following this procedure, we recorded that the muscle is vulnerable to conjunctival scar according to the limbal methodology. Surgeons applied two whip stitches during surgery with (6'0) poly gelatin (910) soakable that made the closure at its lower and upper rims closer to the insertion. Physicians split the muscle closer to its insertion that made the retraction of muscle possible. After recording the measurements with the help of calliper, the muscle made junction on sclera posterior to insertion. Then they pulled out the loose muscle and stretched the joint knot to make it adherent with the connected site. Then substituted the intersected absorbable joints with conjunctiva. After that, we gave geneticin (20) mg through sub-conjunctival injection by mixing (4) mg dexamethasone and then applied the bandage for the next twenty-four hours. To maintain the operative outcomes, follow up is the necessary step and researcher followed up the cases after fifteen days, twelve weeks, and sixteen weeks respectively. In these follow up after the surgeries, we determined the evaluation of Orth-optic, photographs of the patients, measurement of visual acuity and deviation angle. Therefore, we recorded the best adjusted visual acuity and deviation angle after the sixth month.

### RESULTS:

This research included total (7000) patients. Among these patients, we determined only (87) patients

diagnosed with strabismus. But, only (39) patients fulfilled the inclusion criteria of regular concomitant esodeviation. Whereas out of these thirty-nine patients, (8) patients refused to attend the surgical operations. Rest of (31) patients diagnosed with esotropia of (60) PD in twenty patients (64.5%) and esotropia greater than (60) PD in eleven patients (35.5%) surrendered for the surgical procedures. We took the final view with the help of six month follow up and the success of operations was determined if the angle of deviation reported as (15) prism diopters or less than that.

In preparing the history of patients, we included the data of angle of deviation, and the results after carrying all the surgical operational procedures. Out of these (31) patients who underwent the surgical procedures, seven patients did not cooperate in maintaining the record of their follow up history. Whereas, (24) completely observed the postoperative follow up procedure for the consecutive six months. Out of these surgeries, twenty-two patients received successful alignment of their visual axis whereas, rest of the nine patients displayed residual deviation. We resolved the problem of suture regarding external body granuloma formation of those patients who reported it. We observed normal ocular movement along with convergence among all subjects. This study did not record any tendency towards consecutive cross-eyed in the follow-ups after the operation. We recommended second surgery to those patients who displayed residual strabismus.

**Table – I: Demographic Features**

Demographics		Number	Percentage
Sex	Male	13	41.9
	Female	18	58.1
Age	Up to 5 Years	7	22.5
	06 to 10 Years	9	29.1
	11 to 15 Years	15	48.4
Residence	Rural	12	38.7
	Urban	19	61.3
Use of	Lenses	6	19.3
Financial Status	Upper	0	0
	Middle	10	32.2
	Lower	21	67.8

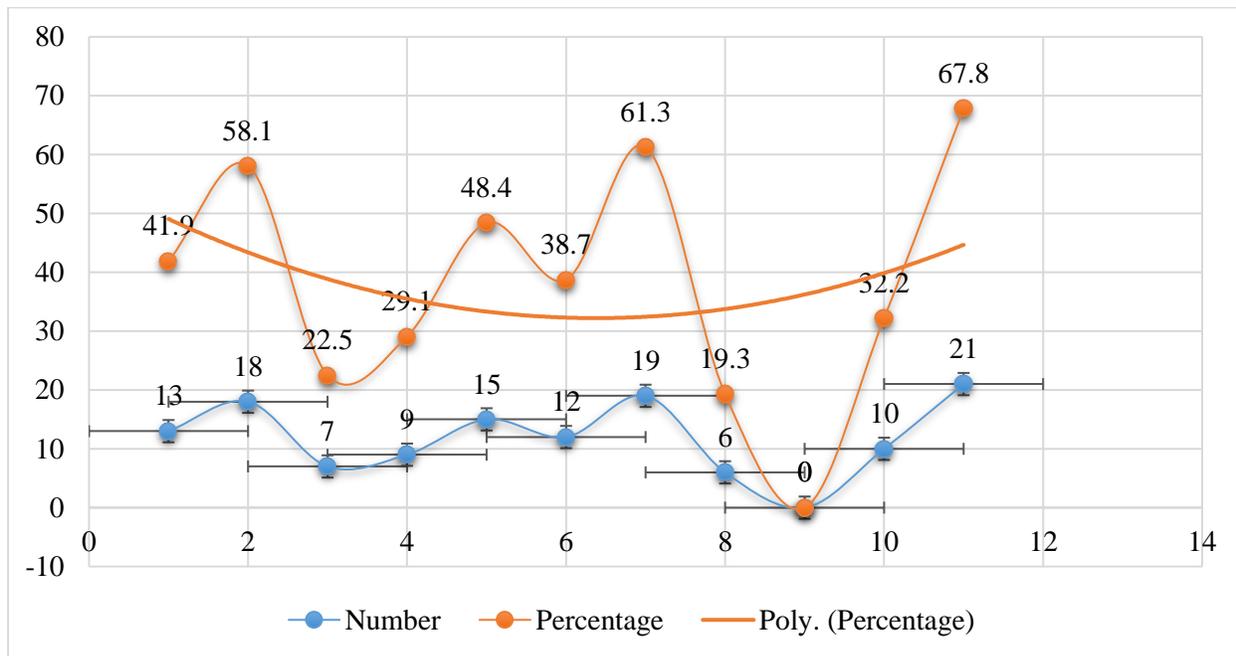
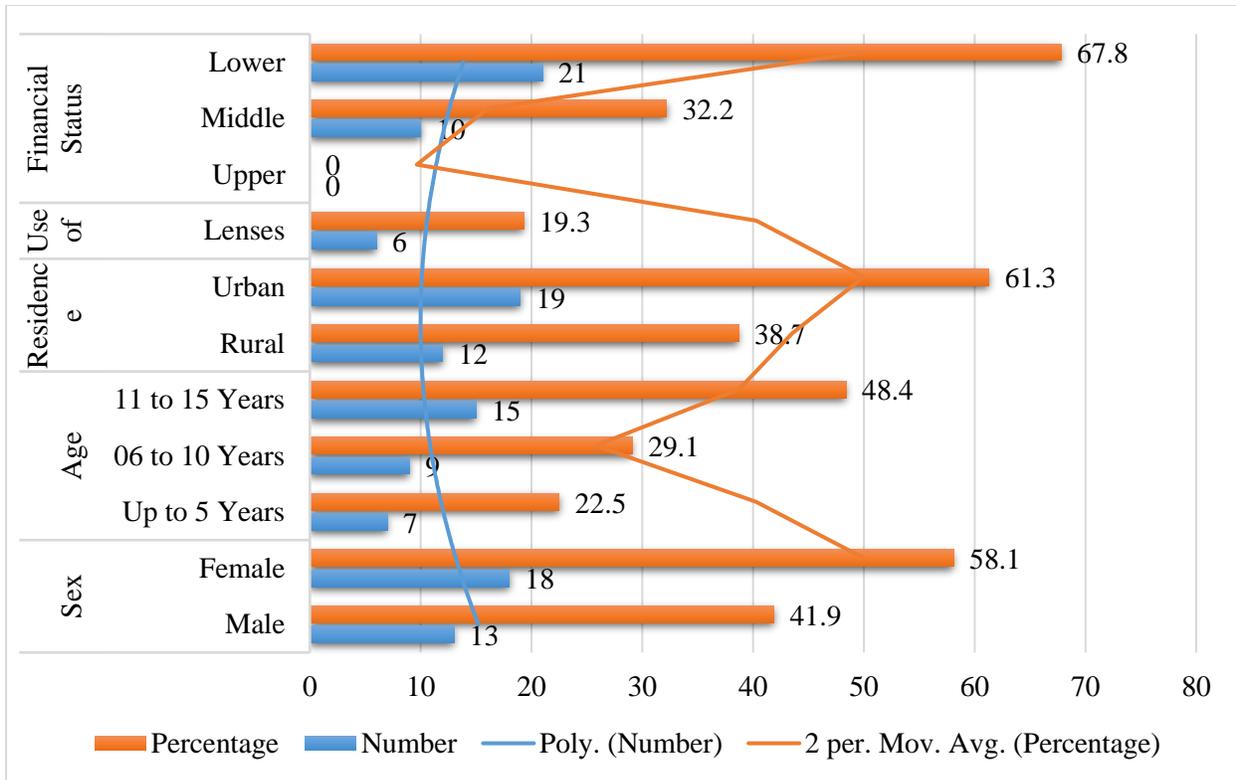
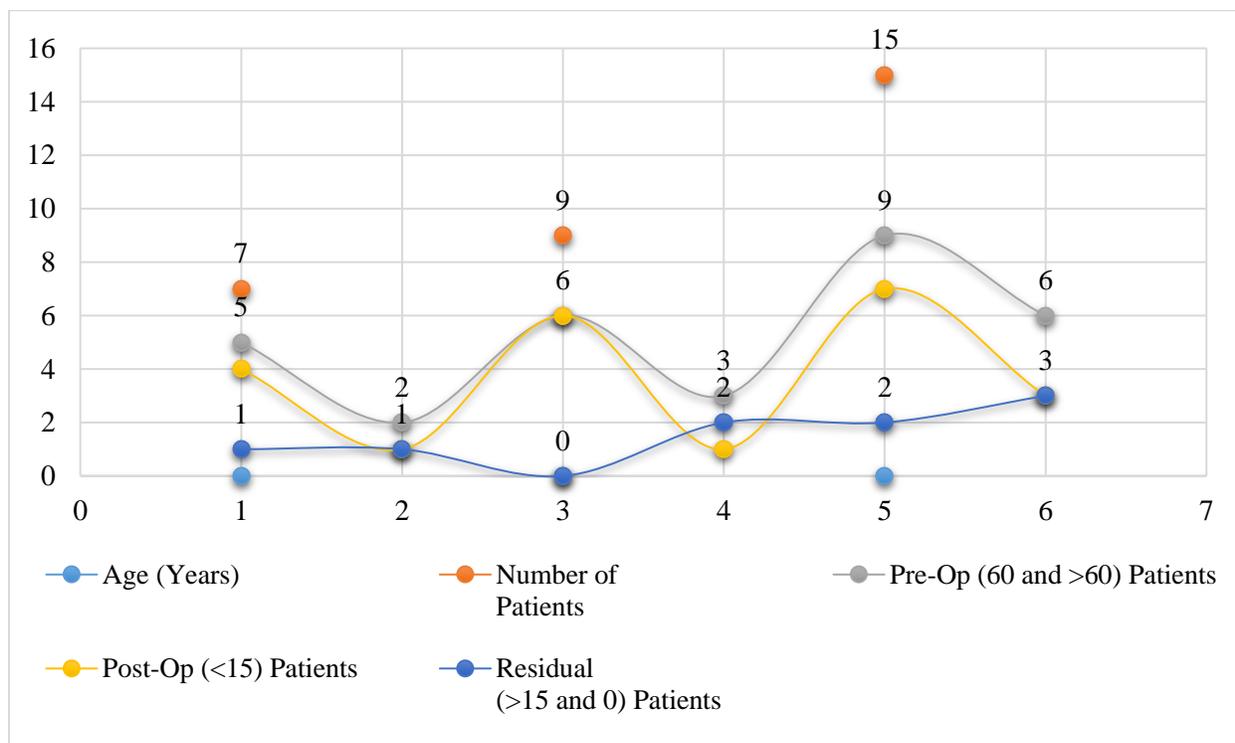


Table – II: Pre and Post-Operative Clinical Characteristics

Number of Patients	Age (Years)	Pre-Op		Post-Op		Residual	
		Deviation Angle	Patients	Deviation Angle	Patients	Deviation Angle	Patients
7	Up to 05	60	5	< 15	4	> 15	1
		> 60	2	< 15	1	> 15	1
9	06 to 10	60	6	< 15	6	0	0
		> 60	3	< 15	1	> 15	2
15	11 to 15	60	9	< 15	7	> 15	2
		> 60	6	< 15	3	> 15	3



### DISCUSSION:

We recommend monocular strabismus surgery that is very helpful for the patients with such disorder as the entire procedure does not much time for the successful outcomes. Therefore, researchers observed that high deviations, like, which are more than (60) PD are generally hard to align and usually requires a second surgery on fixating eye or binocular (3) muscles operation on horizontal recti [13, 14]. Two-sided balanced medial rectus depression is a most recommended operational procedure for the sake of adjustment of regular concomitant esotropia [15 – 16]. Researchers counted it upon multiple pros of this

technique that preserves the whole muscle and reduces the chances of post-operative granuloma formation. Moreover, it has minimum chances of induced astigmatism at the initial stages of the post-operative period [17]. In the light of clinical literature, many researchers recommended (7) mm of balanced medial rectus recession [18]. Weakley and his coauthors coded (75%) success proportion in visual alignment through the technique of (7) mm of recession [18, 19]. Our research reported in the findings that (71%) patients achieved orthophoria which concord with the findings of Weakley [20 – 23].

**CONCLUSION:**

By dint of this research, we reached to the conclusion that a (7) mm recession of medial recti is an efficient and successful procedure for the adjustment of large angle esotropia up to (60) PD and above this deviation, we considered it as an agreeable substitute to operation on (3 – 4) muscles.

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