CHARACTERISTICS OF PTOSIS PRESENTATION AT DHULIKHEL HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Ptosis is a common oculoplastic disorder that ranges from a cosmetic concern to a cause of visual impairment. This study aimed to describe the demographic profile, clinical features, etiological patterns, and visual impact of ptosis at a tertiary eye centre in Nepal. A hospital-based cross-sectional study was conducted at the Department of Ophthalmology, Dhulikhel Hospital–Kathmandu University School of Medical Sciences, from 1 May to 1 July 2023. Following ethical approval, data were collected using a structured proforma from all patients with ptosis, covering demographic details, clinical history, ocular examination findings, eyelid measurements, associated conditions and visual acuity. Ptosis severity was assessed clinically and confirmed using marginal reflex distance. The study included 51 patients, with a mean age of 36.84 ± 21.16 years and 26 (51%) males. Ptosis was unilateral 26 (51%) and long-standing 33 (64.7%). No identifiable precipitating factor was found in 35 (68.6%) patients. Congenital ptosis was present in 7 (13.7%). The mean marginal reflex distance was 2.31 mm in the right eye and 2.04 mm in the left eye. Moderate to severe ptosis was observed in 28 (54.9%) patients. Visual impairment in the better eye was present in 13 (25.5%) patients, including 4 (7.8%) with severe visual impairment or blindness. Associated systemic or neuromuscular conditions were identified in 6 (11.8%) patients. Ptosis commonly presents as a unilateral, long-standing condition with a significant proportion of patients experiencing moderate to severe disease and visual impairment. Early detection and comprehensive evaluation are essential to optimize visual outcomes.

KEYWORDS

Drooping, eyelid, nepal, ophthalmology, ptosis

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DOI: https://doi.org/10.3126/nmcj.v28i2.97696

***Received on**: January 20, 2026*
***Accepted for publication**: April 23, 2026*

Cite this paper as: Shrestha T, Ojha P, Mahaset S, Kahdka S, Tamang A. Characteristics of Ptosis presentation at Dhulikhel Hospital: A cross-sectional study. *Nepal Med Coll J* 2026; 28: 131-7.

INTRODUCTION

Ptosis refers to the abnormal drooping of the upper eyelid and is a frequently encountered condition in ophthalmic practice.[1,2] While it may present as a cosmetic concern in some individuals, it can also result in significant functional impairment by obscuring the visual axis, reducing superior visual fields, inducing abnormal head posture and contributing to amblyopia, particularly in children.[3,4] Ptosis may be congenital or acquired and etiologies are commonly classified as myogenic, aponeurotic, neurogenic, mechanical or traumatic.[1,2,5] Globally, aponeurotic ptosis is the most common form among adults, whereas congenital ptosis carries particular importance in pediatric populations due to its impact on visual development and long-term quality of life.[1,6]

Despite its clinical relevance, epidemiological data on ptosis remain limited, particularly in low- and middle-income countries.[7,8] In Nepal, published literature describing the demographic characteristics, clinical spectrum, eyelid measurements and visual impact of ptosis is scarce. Understanding local presentation patterns is essential for improving early detection, guiding appropriate referral and preventing avoidable visual impairment. Therefore, this study aimed to describe the demographic profile, clinical characteristics, eyelid measurements, severity distribution, and visual status of patients presenting with ptosis at a tertiary eye centre in Nepal.

MATERIALS AND METHODS

This was a cross-sectional, hospital-based observational study conducted to evaluate the clinical characteristics, aetiology, presenting features, management strategies, and prognosis of ptosis among patients presenting to the Department of Ophthalmology at Dhulikhel Hospital (Kathmandu University Teaching Hospital), Nepal. The study was carried out over three months from May 1, to July 1, 2023, during routine outpatient department (OPD) consultations.

All patients presenting with symptoms of ptosis to the ophthalmology outpatient department during the study period were consecutively enrolled. A total of 51 patients were included using consecutive (convenience) sampling.

Inclusion criteria comprised any patient of any age or sex presenting with ptosis. Exclusion criteria included patients with mental illness, those in poor general health precluding examination, or those unwilling to provide informed consent.

After obtaining written informed consent, demographic and clinical data were collected on the same day through structured face-to-face interviews and comprehensive ophthalmologic examinations conducted by trained ophthalmology personnel to ensure consistency. A structured proforma was used to record demographic details (age, sex) and clinical characteristics, including age of onset, duration, laterality, severity of ptosis, precipitating factors, family history and associated symptoms.

A detailed ophthalmic examination was performed of all participants. Assessment of distance visual acuity was carried out using a Snellen chart, while the tumbling E chart was used for illiterate patients. For preschool children, the Catford vision drum was employed, and in infants, a torchlight was used to assess fixation and light following. Near vision and pinhole vision were documented when appropriate.

Ocular examination included assessment of ocular motility, levator function, visual acuity, presence of syndromic features, and compensatory mechanisms such as abnormal head posture and frontalis overactivity. Standardized quantitative eyelid measurements were performed for both eyes, including: Palpebral fissure height, margin reflex distance-1 (MRD1), margin reflex distance-2 (MRD2), margin crease distance and levator function (upper eyelid excursion).

Measurements were taken in primary gaze, upgaze, and downgaze using a millimeter scale. Each measurement was performed three times, and the mean value was recorded to improve accuracy. Severity of ptosis was graded as mild (≤2 mm of drooping), moderate (3mm of drooping), or severe (>4 mm of drooping) based on standard clinical measurement of upper eyelid displacement relative to the superior limbus.[9] Binary variables were used to record the presence or absence of symptoms. All examinations followed standardized protocols to maintain uniformity.

Diagnostic tests, such as the fatigue test, were performed when indicated. Patients suspected of having neurological or neuromuscular causes of ptosis were referred to the Department of Neurology for further evaluation and diagnostic confirmation.

Based on hospital outpatient records and prior clinical experience, approximately 50

patients with ptosis are expected to present to Dhulikhel Hospital annually. Considering the study duration and feasibility, all eligible patients presenting during the study period were included. Accordingly, a total of 51 patients presenting during the study period met the eligibility criteria and were enrolled for one-time clinical evaluation and baseline documentation of treatment plans and prognosis.

Ethical approval was obtained from the Institutional Review Committee of Kathmandu University School of Medical Sciences, approval number 145/23. Written informed consent was obtained from all participants or their guardians before enrollment. Confidentiality and anonymity were strictly maintained throughout the study.

RESULTS

A total of 51 patients with symptomatic ptosis were included in the study. The mean age was 36.84±21.16 years, and the majority were male, 26 (51%). The severity of the ptosis was mild in 23 (45.1%), moderate in 15 (29.4%) and severe

Table 1: Baseline characteristics and clinical profile of patients with Ptosis (n=51)

Varibles	n (%) or Mean±SD
Demographics	
Age (years) (range)	36.84±21.16 (10-74)
Sex	
Male	26 (51.0)
Female	25 (49.0)
Clinical presentation	
Laterality	
Unilateral	26 (51.0)
Bilateral	25 (49.0)
Duration of Ptosis	
< 1 year	4 (7.8)
1–15 years	33 (64.7)
> 15 years	14 (27.5)
Precipitating factors	
None identified	35 (68.6)
History of trauma	7 (13.7)
Underlying medical condition	7 (13.7)
Previous eye surgery	2 (3.9)
Associated conditions	
Absent	45 (88.2)
Present	6 (11.8)
• Myasthenia gravis	2 (3.9)
• Jaw winking	2 (3.9)
• Diplopia	1 (2.0)
• Myotonic dystrophy	1 (2.0)
Family history of Ptosis	
Positive	7 (13.7)
Negative	44 (86.3)
Head posture	
No any	42 (82.4)
Chin lift	6 (11.8)
Face turn	3 (5.9)

...Table 1 Continued:

Varibles	n (%) or Mean±SD
Overactivity of the frontalis	
Present	3 (5.9)
Absent	48 (94.1)
Blepharophimosis	
Present	4 (7.8)
Absent	47 (92.2)
Hypoplasia of the nasal bridge	
Present	3 (5.9)
Absent	48 (94.1)
Telecanthus	
Present	3 (5.9)
Absent	48 (94.1)
Horizontal shortening of eyelids	
Present	2 (3.9)
Absent	49 (96.1)
Lid retraction of another eye	
Present	1 (2)
Absent	50 (98)
Lid lag in down gaze	
Present	8 (15.7)
Absent	43 (84.3)
Congenital condition	
Present	7 (13.7)
Absent	44(86.3)
Clinical severity of Ptosis	
Mild	23 (45.1)
Moderate	15 (29.4)
Severe	13 (25.5)
Fatigue test	
Present	3 (5.9)
Absent	48 (94.1)
Relation with sleep	
Affected	3 (5.9)
Non affected	48 (94.1)

in 13 (25.5%) cases, Table 1. More than half of the cohort, 28 (54.9%), had more clinically significant presentations, which are classified as moderate and severe.

Table 2 : Eyelid measurements (Mean±SD) in patients

Measurement	Rt. eye (mm)	Lt. eye (mm)
MRD1	2.31±1.59	2.04±1.42
MRD2	4.25±1.59	4.39±1.33
PFH	6.53±2.17	6.41±2.00
MCD	4.57±2.48	4.73±2.41

Out of 51 patients, 38 (74.5%) of the individuals had visual acuity in their better eye that was within the usual range (6/6 to 6/18). One in four subjects (25.5%), a clinically significant portion of the sample, experienced some degree of visual impairment in their better-seeing eye (moderate in 9 (17.6%), severe in 2 (3.9%), and blindness in 2 (3.9%). Remarkably, 4 (7.8%) had severe visual impairment or blindness (Table 3).

jaw winking, 1 (2%) had diplopia, and 1 (2%) had myotonic dystrophy. Nearly two-thirds 33 (64.7%) had noticed the drooping for 1–15 years, and more than a quarter 14 (27.5%) had experienced it for over 15 years. Only a small number, 4 (7.8%) had developed ptosis within the past year.

Seven participants (13.7%) showed a positive family history of ptosis, whereas the majority of 44 (86.3%) reported no family history. A smaller percentage exhibited compensatory postures: 6 (11.8%) showed a chin lift, and 3 (5.9%) showed a face turn. In contrast, 42 (82.4%) showed no abnormal head posture. 5 (5.9%) exhibited frontalis overaction, whereas 48 (94.1%) did not exhibit any signs of frontalis recruitment. 4 (7.8%) of the study population were found to have blepharophimosis, while 47 (92.2%) did not.

A total of 48 (94.1%) were found to be telecanthus-free. In contrast, 3 (5.9%) had an identification of the condition. Epicanthal inversion had the same frequency distribution as telecanthus.

Table 3: Visual acuity of patients based on WHO criteria(Better Eye)

WHO category	Visual acuity range (Better eye)	Participants (n)	%
No impairment	6/6 – 6/18	38	74.50
Visual impairment (Moderate)	<6/18 – 6/60	9	17.60
Severe visual impairment	<6/60 – 3/60	2	3.90
Blindness	<3/60	2	3.90
Total		**51**	**100.00**

Most patients presented with unilateral ptosis 26 (51%). Of the participants in the study, 35 (68.6%) had no identifiable precipitating factor, while 7 (13.7%) had a history of trauma, 7 (13.7%) had underlying medical conditions, and 2 (3.9%) had previously had eye surgery (Table 1).

The mean marginal reflex distance, MRD1 values for the right eye was 2.31 ±1.59 mm where as the left eye was 2.04 ± 1.42 mm. The mean marginal reflex distance 2 (MRD2) for the right eye was 4.25 ± 1.59 mm whereas the left eye was 4.39 ± 1.33 mm. The mean palpebral fissure height (PFH) for the right eye was 6.53 ± 2.17 mm whereas the left eye was 6.41 ± 2.00 mm. The mean marginal crease distance (MCD) for the right eye was 4.57 ± 2.48 mm whereas the left eye was 4.73 ± 2.41 mm (Table 2).

The associated condition was absent in 45 (88%), but it was present in 6 (11%), of which 2 (3%) had myasthenia gravis, 2 (3%) had

Three (5.9%) had epicanthus, but 48 (94.1%) did not have it. 49 (96.1%) people did not have the horizontal short eyelid phenotype, while 2 (3.9%) did. Congenital ptosis was present in 7 (13.7%).

Three (5.9%) of the subjects had hypoplasia of the nasal bridge. On the other hand, 48 (94.1%) of the instances did not exhibit nasal bridge hypoplasia. The majority of participants, 45 (88.2%), did not have strabismus, but 6 (11.8%) did. Only one patient (2.0%) had lid retraction of the other eye, which was a rare occurrence. In comparison, 50 people (98.0%) did not have it.

A lower percentage of participants had extraocular muscle impairment: 6 (11.8%) were categorized as involved. On the other hand, 45 (88.2%), were classified as normal. With a prevalence of 8 (15.7%), lid lag was less common. The great majority of participants

43 (84.3%) did not have the condition. A lower percentage of subjects had a positive fatigue test result: 3 (5.9%). Forty-eight (94.1%), on the other hand, obtained a negative test result. A lesser percentage of participants reported an improvement in ptosis with their sleep habits: 3 (5.9%) and 48 (94.1%) reported no improvement.

DISCUSSION

This hospital based cross sectional study provides insight into the clinical characteristics and functional impact of ptosis among patients presenting to a tertiary eye centre in Nepal. The key findings were the predominance of long standing disease 47 (92.2%) duration more than one year a near equal distribution of unilateral 26 (51.0%) and bilateral ptosis 25 (49.0%) a high proportion of moderate to severe ptosis 28 (54.9%) and a clinically relevant burden of visual impairment 13 (25.5%) including severe visual impairment or blindness in 4 (7.8%) patients Table 1 and Table 3. These findings support the concept that ptosis in this setting is frequently a functionally significant condition rather than a purely cosmetic concern.

The mean age of presentation in our study was 36.84 ± 21.16 years ranging from 10-78 years, Table 1, which is substantially lower than that reported in many Western cohorts. For instance, a major American oculoplastics practice study by Lim *et al.*[10] reported a clear predominance of involutional aponeurotic ptosis where the mean presentation age exceeded 55 years. In contrast, our younger age distribution aligns closely with documentation from South Asian tertiary care centers. This includes a study by Gautam *et al*[11] in Western Nepal and a two-year profiling study by Anand *et al*[12] in North India, both of which highlighted how a mixed distribution of congenital and early-onset acquired etiologies contributes to a much earlier clinical presentation in this geographic region.[11,12] Furthermore, the near-equal sex distribution in our cohort 26 (51.0%) males and 25 (49.0%) females stands in distinct contrast to several international series. Broad epidemiological and clinical feature studies, such as the Taiwanese population study by Lee *et al*[13] and a Nigerian tertiary center analysis by Kayoma and Osaguona,[14] frequently note a distinct female predominance in adult aponeurotic ptosis. Our balanced sex ratio is similarly in localized regional data, such as a Kashmiri demographic study on ptosis by Nisa and Khan,[15] indicating that these trends may reflect distinct localized healthcare-seeking behaviors, increased occupational exposure to minor ocular trauma, or primary care referral patterns within the local population, rather than true biological or genetic variations.

Unilateral ptosis was observed in 26 (51.0%) patients Table 1, which is lower than the 65–85% unilateral rates reported in several South Asian surgical series.[11,13,14] This difference is likely explained by our inclusion of all symptomatic ptosis patients rather than only those undergoing surgery, as bilateral and congenital cases are more likely to be represented in outpatient-based descriptive studies. In addition, the absence of an identifiable precipitating factor in 35 (68.6%) patients suggests that aponeurotic or idiopathic mechanisms were common, even though detailed etiological subclassification was not the primary aim of this study.

This prolonged duration before presentation is longer than that reported in many high-income settings and likely reflects delayed health care utilization, limited access to specialized oculoplastic services and gradual progression of symptoms that do not prompt early consultation.[12,16,17] This delay plausibly contributes to the higher proportion of moderate and severe ptosis observed in our study.

Congenital ptosis was identified in 7 (13.7%) patients Table 1, which is lower than the proportions reported in pediatric or surgical cohorts from the region where congenital cases may exceed 40–50%.[17-19] Large Korean and Indian surgical series report congenital ptosis in 78–92% of blepharoptosis patients, reflecting strong referral of visually threatening or cosmetically significant pediatric cases.[18,20,21]

This lower proportion is likely due to referral bias, as systematic and narrative reviews stress that mild congenital ptosis without amblyopia, refractive error, or marked abnormal head posture is often observed rather than referred for surgery, especially if the cosmetic concern is limited.[21-23] Supporting this interpretation, compensatory head posture was observed in only 9 (17.7%) patients, chin lift 6 (11.8%) and face turn 3 (5.9%), suggesting that many congenital cases with early adaptation may remain undetected.

Associated systemic or neuromuscular conditions were present in 6 (11.8%) patients, including myasthenia gravis 2 (3.9%), jaw winking 2 (3.9%) and myotonic dystrophy 1 (2.0%) Table 1. Although infrequent, these associations are clinically significant.[24] The low prevalence of positive fatigue test 3 (5.9%) and

sleep-related improvement 3 (5.9%) indicates that neurogenic ptosis was uncommon but reinforces the need for targeted neurological evaluation in selected cases, particularly those with variable bilateral involvement or extraocular muscle limitation 6 (11.8%).[24,25]

Objective eyelid measurements demonstrated reduced MRD1 values, with a mean MRD1 of 2.31 ± 1.59 mm in the right eye and 2.04 ± 1.42 mm in the left eye Table 2. These values are lower than normative references and comparable to measurements reported in moderate ptosis cohorts elsewhere.[24,26,27] The relatively preserved MRD2 and palpebral fissure height values suggest that upper eyelid position rather than lower lid abnormality was the principal contributor to eyelid narrowing in this population.

Importantly, ptosis in this cohort was associated with measurable visual morbidity. Visual impairment in the better eye was present in 13 (25.5%) patients, including moderate impairment in 9 (17.6%), severe impairment in 2 (3.9%), and blindness in 2 (3.9%) Table 3. The proportion of severe visual impairment or blindness 4 (7.8%) is higher than that reported in many Western series and likely reflects prolonged untreated ptosis, pupil obstruction and associated amblyopia, particularly in congenital cases.[22,28] These findings emphasize the need for early identification and timely intervention to prevent avoidable visual disability.

Overall differences between our findings and those reported from high-income countries and surgical series are best explained by delayed presentation differences in access to care and study design rather than fundamental differences in disease biology.[29,30] Our data highlight that in resource-limited settings, ptosis frequently presents late with greater severity and significant functional impact underscoring the importance of early screening patient education and appropriate referral pathways.

Ptosis in this tertiary eye care setting represents a clinically significant condition with a substantial burden of functional visual impairment rather than a purely cosmetic concern. Early identification and systematic evaluation are essential, particularly in congenital and long-standing cases, to prevent avoidable visual disability. Strengthening awareness, referral pathways, and timely intervention at primary and secondary care levels is critical to improving visual outcomes in low-resource settings such as Nepal.

ACKNOWLEDGEMENT

We are grateful to the Department of Ophthalmology and Department of Research and Development of Dhulikhel Hospital. We are also grateful to every patient who took part in this research.

Conflict of interest: None

Source of research fund: None

REFERENCES

1. Deng H, Zhang Q, Yi J *et al*. Unraveling ptosis: A comprehensive review of clinical manifestations, genetics, and treatment. *Prog Retin Eye Res* 2025; 105: 101327.
2. Keene KR, Kan HE, van der Meeren S *et al*. Clinical and imaging clues to the diagnosis and follow-up of ptosis and ophthalmoparesis. *J Cachexia Sarcopenia Muscle* 2022; 13: 2820–34.
3. Kim KK, Granick MS, Baum GA *et al*. American society of plastic surgeons evidence-based clinical practice guideline: Eyelid surgery for upper visual field improvement. *Plast Reconstr Surg* 2022; 150: 419e–434e.
4. Cahill KV, Bradley EA, Meyer DR *et al*. Functional indications for upper eyelid ptosis and blepharoplasty surgery: a report by the American Academy of Ophthalmology. *Ophthalmology* 2011; 118: 2510–7.
5. Pavone P, Cho SY, Praticò AD *et al*. Ptosis in childhood: A clinical sign of several disorders Case series reports and literature review. *Medicine (Baltimore)* 2018; 97: e12124.
6. Kersten RC, de Conciliis C, Kulwin DR. Acquired ptosis in the young and middle-aged adult population. *Ophthalmology* 1995; 102: 924–8.
7. Griepentrog GJ, Diehl NN, Mohney BG. Incidence and demographics of childhood ptosis. *Ophthalmology* 2011; 118: 1180–3.
8. Hutchinson AK, Morse CL, Hercinovic A *et al*. Pediatric eye evaluations preferred practice pattern. *Ophthalmology* 2023; 130: 222–70.
9. Koka K and Patel BC. Ptosis correction. StatPearls Publishing, Treasure Island. Available from: https://www.ncbi.nlm.nih.gov/books/NBK539828/ (2025). (Accessed on: October 2025)
10. Lim JM, Hou JH, Singa RM *et al*. Relative incidence of blepharoptosis subtypes in an oculoplastics practice at a tertiary care center. *Orbit* 2013; 32: 231–4.

11. Gautam P, Adhikari R, Sharma BR. Etiopathogenetic patterns of blepharoptosis in Western Nepal : an overview. *Nepal J Ophthalmol* 2016; 8: 36–40.
12. Anand N, Deswal J, Khurana AK. Profile and management of blepharoptosis patients in North India - A two-year study. *J Evid Based Med Health* 2020; 7: 2394-8.
13. Lee CC, Feng IJ, Lai HT *et al*. The epidemiology and clinical features of blepharoptosis in Taiwanese population. *Aesthetic Plast Surg* 2019; 43: 964-72.
14. Kayoma AH and Osaguona VB. Relative incidence and demographics of blepharoptosis subtypes in a tertiary care centre, south-south, Nigeria. *West Afr J Med* 2020; 37: 796-800.
15. Nisa R and Khan A. Congenital ptosis in Kashmiri population: a demographic study. *Glob J Res Analysis* 2021; 216-7.
16. Finsterer J. Ptosis: causes, presentation, and management. *Aesthetic plastic surgery*; 27. Epub ahead of print May 2003. DOI: 10.1007/s00266-003-0127-5.
17. Lee V, Konrad H, Bunce C *et al*. Aetiology and surgical treatment of childhood blepharoptosis. *Br J Ophthalmol* 2002; 86: 1282–6.
18. Agrawal G and Meena S. Demography, clinical presentation and management of blepharoptosis at a tertiary eye care centre in western India. *Indian J Clin Exp Ophthalmol* 2025; 11: 13–8.
19. Lee YG, Son BJ, Lee KH *et al*. Clinical and demographic characteristics of blepharoptosis in Korea: a 24-year experience including 2,328 patients. *Korean J Ophthalmol* 2018; 32: 249–56.
20. Ho YF, Wu SY, Tsai YJ. Factors associated with surgical outcomes in congenital ptosis: a 10-year study of 319 cases. *Am J Ophthalmol* 2017; 175: 173–82.
21. Bai JS, Song MJ, Li BT *et al*. Timing of surgery and treatment options for congenital ptosis in children: a narrative review of the literature. *Aesthetic Plast Surg* 2023; 47: 226–34.
22. Marenco M, Macchi I, Macchi I *et al*. Clinical presentation and management of congenital ptosis. *Clin Ophthalmol* 2017; 11: 453–63.
23. Wang Y, Xu Y, Liu X *et al*. Amblyopia, strabismus and refractive errors in congenital ptosis: a systematic review and meta-analysis. *Sci Rep* 2018; 8: 8320.
24. Latting MW, Huggins AB, Marx DP *et al*. Clinical evaluation of blepharoptosis: distinguishing age-related ptosis from masquerade conditions. *Semin Plast Surg* 2017; 31: 5–16.
25. Son Y, Lee EJ, Kim N-H *et al*. Imaging findings in neurogenic ptosis. *J Korean Soc Radiol* 2025; 86: 483–500.
26. Aytogan H and Ayıntap E. Comparing the symmetry of upper eyelid following unilateral ptosis correction. *BMC Ophthalmol* 2021; 21: 438.
27. Nowak-Gospodarowicz I, Kicińska A, Kinasz M *et al*. A new algorithm for the transconjunctival correction of moderate to severe upper eyelid ptosis in adults. *Sci Rep* 2024; 14: 2566.
28. Arjyal Kafle P, Hamal D, Sahu S *et al*. Blepharoptosis: pattern and its surgical management in a tertiary eye hospital of eastern Nepal. *Nepalese Med J* 2022; 5: 510–3.
29. Ptosis presentation age and sex distribution - Consensus. Available from: https://consensus.app/search/ptosis-presentation-age-and-sex-distribution/VE7RVniIShidHaGpJ6YqjQ/# (Accessed on: January 2026).
30. Atima MO, Idakwo U, Komolafe O *et al*. A retrospective cohort study of the clinical presentation and visual outcomes of blepharoptosis treatment. *Niger J Clin Pract* 2024; 27: 1197–201.