

A study of Prevalence of primary and secondary atrophic rhinitis at tertiary health care centre

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Abstract

Background: Primary atrophic rhinitis or ozaena is a well-known disease for ages and was first described by Fraenkel in the latter part of the nineteenth century. **Aims and Objectives:** To study Prevalence of primary and secondary atrophic rhinitis at tertiary health care centre. **Methodology:** This was a cross-sectional study at the Outpatient Department of E .N.T. from August 2015 to August 2016 in the 50 patients. A Detailed clinical and demographic history was taken. A Detailed Otolaryngoscopic examination was done primary and secondary patients atrophic rhinitis was diagnosed and causes of secondary rhinitis was also investigated. The statistical analysis done by Chi-square test calculated by SPSS 19 version software. **Result:** In our study we have found that The overall prevalence of atrophic rhinitis was more in females i.e. 56% as compared to males i.e. 44%. The proportion of females in the age group of 15-20 and 21-25 was 30% and 24% was significantly higher than the Males i.e. 10% and 6% respectively. ($P < 0.0002, \chi^2 = 21.56, df=4$). As per Side affected Unilateral were 42%. The most common Symptoms were Crust deposition in 100% followed by Ozaena in 70%, Blocking of the nose in 48%. The most common signs were Crust deposition in 100 % followed by Atrophy of turbinates with roomy nostrils in 84%. The causes of secondary atrophic rhinitis were Leprosy in 60%, Chronic sinusitis in 10%, Surgical trauma in 20%, Diabetes mellitus in 5% and Rhinoscleroma in 5%. **Conclusion:** It can be concluded that prevalence of atrophic rhinitis was more in females. The most common Symptoms were Crust deposition by Ozaena. The most common signs were Crust deposition The causes of secondary atrophic rhinitis were Leprosy, Chronic sinusitis. **Key Word:** primary and secondary atrophic rhinitis, Ozaena, Chronic sinusitis.

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INTRODUCTION

Primary atrophic rhinitis or ozaena is a well-known disease for ages and was first described by Fraenkel in the latter part of the nineteenth century¹. The disease is characterized by a sclerotic change in the mucous membrane and abnormal patency of the nasal passages due to atrophic changes in the mucosa and underlying bones, along with thick viscid secretions which, when dry, emit a characteristic foul smell. Atrophic rhinitis can

be classified into two types, that is, a primary or idiopathic type where the etiology is not known and a secondary type where the disease develops secondary to some other primary disease. The condition is predominantly seen in young and middle aged adults, especially females (F:M =5.6:1)². Its prevalence varies in different regions of the world. It is a common condition in tropical countries such as India. In the countries with higher prevalence, primary atrophic rhinitis can affect 0.3%–1.0% of the population³. The exact etiology of primary atrophic rhinitis is unknown though many theories and hypotheses have been postulated for explanation of atrophic rhinitis. The factors blamed for its genesis are specific infections, autoimmunity, chronic sinus infection, hormonal imbalance, poor nutritional status, heredity, and iron deficiency anemia. Chronic bacterial infection of the nose or sinus may be one of the causes of primary atrophic rhinitis^{4,5}. Classically, Klebsiella ozaenae has been implicated most frequently², but other infectious agents associated with atrophic rhinitis include Coccobacillus foetidusozaenae,

Bacillus mucosus, Diphtheroids bacillus, Bacillus pertussis, Haemophilus influenzae, Pseudomonas aeruginosa, and Proteus species. Though it is still not clear whether these bacteria cause the disease or are merely secondary invaders, it may be possible that superinfection with mixed flora causes ciliostasis leading to epithelial destruction and progressive mucosal changes. Nutritional deficiency, especially of iron, fat soluble vitamins, and proteins, has also been suggested in the etiology of primary atrophic rhinitis^{6,8}. It appears to be more common in lower socioeconomic classes and those living in poor hygienic conditions⁷. An environmental influence is suggested by its enhanced prevalence in rural areas (69.6%) and amongst industrial workers (43.5%)². It is seen to have a polygenic inheritance in 15%–30% of cases, while other studies have revealed either an autosomal dominant (67%) or autosomal recessive penetrance (33%)⁹. Little is known about this 'secondary form' and it remains incompletely characterized. It has occurred in association with chronic granulomatous diseases of the nose, including tuberculosis, syphilis, leprosy, sarcoidosis, rhinoscleroma, and Wegener's granulomatosis. The onset after treatment with antiangiogenic drugs underlines the role of the microvasculature in the pathogenesis. It has also been associated with extensive sinus surgery, often involving radical turbinectomies (empty nose syndrome), nasal or sinus injuries and radiation therapy to the area. Symptoms associated with secondary atrophic rhinosinusitis include chronic nasal obstruction, purulent postnasal drip, nasal crusting, epistaxis, and episodic anosmia.

METHODOLOGY

This was a cross-sectional study at the Outpatient Department of E.N.T. from August 2015 to August 2016 in the 50 patients. A Detailed clinical and demographic history was taken. A Detailed Otolaryngoscopic examination was done primary and secondary patients atrophic rhinitis was diagnosed and causes of secondary rhinitis was also investigated. The statistical analysis done by Chi-square test calculated by SPSS 19 version software.

RESULTS

Table 1: Age wise Incidence

Age (Yr)	No of cases		Percentage
	Male	Female	
15-20	3 (6)	12 (24)	30
21-25	5 (10)	15 (30)	40
26-30	6 (12)	01 (2)	14
31-40	5 (10)	00 (00)	10
>41	3 (6)	0 (00)	6
Total	22 (44)	28 (56)	100

($P < 0.0002$, $\chi^2 = 21.56$, $df=4$)

The overall prevalence of atrophic rhinitis was more in females i.e. 56% as compared to males i.e. 44%. The proportion of females in the age group of 15-20 and 21-25 was 30 % and 24% was significantly higher than the Males i.e. 10% and 6% respectively. ($P < 0.0002$, $\chi^2 = 21.56$, $df=4$)

Table 2: Sex wise distribution of the Patients

Sex	No. of cases	Percentage
Male	22	44
Female	28	56
Total	50	100

Majority of the patients were Females i.e. 56% than Males i.e. 44 %

Table 3: Distribution of the Patients as per type of atrophic rhinitis

Type	No. of cases	Percentage
Primary	30	60.00
Secondary	20	40.00
Total	50	100.00

Majority of the patients were with Primary atrophic rhinitis 60.00% than Secondary atrophic rhinitis 40.00%.

Table 4: Distribution of the Patients as per Side affected

	No. of cases	Percentage
Unilateral	21	42
Bilateral	29	58
Total	50	100

As per Side affected Unilateral were 42% and Bilateral were 58%

Table 5: Distribution of the patients as per the Symptoms

Symptoms	No. of Cases	Percentage
Crust deposition	50	100
Ozaena	34	70
Blocking of the nose	16	48
Epitaxis	15	30
Anosmia	14	28
Headache	23	46
Rhinorrhea	7	14
Recurrent URTI	19	38
Dryness of throat	4	8
Pain in the nose	2	4
Maggots	10	20
Total	50	100

The most common Symptoms were Crust deposition in 100% followed by Ozaena in 70%, Blocking of the nose in 48% Epitaxis in 30%, Anosmia in 28%, Headache in 46%, Rhinorrhea in 14%, Recurrent URTI in 38%, Dryness of throat in 8%, Pain in the nose in 4%, Maggots in 20%.

Table 6: Distribution of the patients as per the signs

Clinical signs	No. of cases	Percentage
Crust deposition	50	100
Atrophy of turbinates with roomy nostrils	42	84
D.N.S.	22	44
Nasal discharge	20	40

The most common signs were Crust deposition in 100 % followed by Atrophy of turbinates with roomy nostrils in 84% D.N.S. in 44%, Nasal discharge in 40%.

Table 7: Distribution of the patients as per causes of secondary atrophic rhinitis

Causes	No.	Percentage (%)
Leprosy	12	60
Chronic sinusitis	2	10
Surgical trauma	4	20
Diabetes mellitus	1	5
Rhinosccleroma	1	5
Total	20	100

The causes of secondary atrophic rhinitis were Leprosy in 60%, Chronic sinusitis in 10%, Surgical trauma in 20%, Diabetes mellitus in 5% and Rhinoscleroma in 5%.

DISCUSSION

Nearly one and a half century ago, in 1876 Fraenkel first described this chronic distressing condition, incurable yet not fatal. In spite of tireless efforts, the code of its etiology still remains unexplained. Many theories and hypotheses are put forth to explain this condition but have failed to catch general acceptance. Primary atrophic rhinitis is still a prevalent disease in India; the reported prevalence of primary atrophic rhinitis ranges from 0.3 to 1 percent of the population in those countries with high prevalence³. In the present study the incidence was 0.62% among the new outpatients cases. Primary atrophic rhinitis is described as a disease of young subject. Most of the authors believe that the disease usually begins at about the age of puberty. In this series age of the patients ranged from 12 to 70 years. Even in the age group above 20 years the onset of the disease could be definitely taken back to an early age. The age of onset is widely distributed before puberty and during child-bearing period suggesting a possible hormonal influence. It has stated that the disease is more common in females than males. In the present study the female: male ratio was 2.5:1. Rural urban population ratio was 2.75: 1. It seems that less caloric diet, early marriage, poor hygiene, and non availability of medical facilities in rural area are few causes why it is more common in rural females. Most of cases in our study belonged to poor socioeconomic group living in poor hygienic conditions and receiving substandard nutrition, these factors may be predisposing factors for the development of disease in these patients. In our study we have found that The overall prevalence of atrophic rhinitis was more in females i.e. 56% as compared to males i.e. 44%. The proportion of females in the age group of 15-20 and 21-25 was 30% and 24% was significantly higher than the Males i.e. 10% and 6% respectively. ($P < 0.0002$, $\chi^2 = 21.56$, $df=4$). Majority of the patients were Females i.e. 56% than Males i.e. 44%.

Majority of the patients were with Primary atrophic rhinitis 60.00% than Secondary atrophic rhinitis 40.00%. As per Side affected Unilateral were 42% and Bilateral were 58%. The most common Symptoms were Crust deposition in 100% followed by Ozaena in 70%, Blocking of the nose in 48% , Epitaxis in 30%, Anosmia in 28%, Headache in 46%, Rhinorrhea in 14%, Recurrent URTI in 38%, Dryness of throat in 8%, Pain in the nose in 4%, Maggots in 20%. The most common signs were Crust deposition in 100 % followed by Atrophy of turbinates with roomy nostrils in 84%, D.N.S. in 44%, Nasal discharge in 40%. The causes of secondary atrophic rhinitis were Leprosy in 60%, Chronic sinusitis in 10%, Surgical trauma in 20%, Diabetes mellitus in 5% and Rhinoscleroma in 5%. These findings are similar to Sampan S. Bist¹⁴ *et al* they found Ninety cases of primary atrophic rhinitis were studied. The most common symptom was nasal crusting. Nasal crust, odour and atrophy of mucosa were the most consistent finding. Nasal myiasis was found in 26.6% cases. The nasal mucociliary clearance time was markedly increased. On investigation there were low value of hemoglobin and total protein in 46.6% and 25.5% patients, respectively. *Pseudomonas aeruginosa* (37%) was the commonest organism isolated from culture. On radiological evaluation evidence of different grade of sinusitis was seen in 87.7% case. Also similar to Z. Lu¹¹, L. Mickiewicz¹², A. Zakrzewski¹³.

REFERENCES

1. M. A. Shehata, "Atrophic rhinitis," *American Journal of Otolaryngology*, vol. 17, no. 2, pp. 81–86, 1996.
2. C. Bunnag, P. Jareoncharsri, P. Tansuriyawong, W. Bhothisuwan, and N. Chantarakul, "Characteristics of atrophic rhinitis in Thai patients at the Siriraj Hospital," *Rhinology*, vol. 37, no. 3, pp. 125–130, 1999.
3. S. N. Dutt and M. Kameswaran, "The aetiology and management of atrophic rhinitis," *Journal of Laryngology and Otology*, vol. 119, no. 11, pp. 843–852, 2005.
4. F. Artiles, A. Bordes, A. Conde, S. Dominguez, J. L. Ramos, and S. Suárez, "Chronic atrophic rhinitis and *Klebsiellaozaenae* infection," *Enfermedades Infecciosas y Microbiologia Clinica*, vol. 18, no. 6, pp. 299–300, 2000.
5. Y. Zohar, Y. P. Talmi, M. Strauss, Y. Finkelstein, and Y. Shvilli, "Ozena revisited," *Journal of Otolaryngology*, vol. 19, no. 5, pp. 345–349, 1990.
6. I. Bernát, "Ozaena and iron deficiency," *British Medical Journal*, vol. 3, no. 613, p. 315, 1968.
7. V. N. Chaturvedi, "Atrophic rhinitis and nasal miasis," in *ENT Disorders in a Tropical Environment*, S. Kameswaran and M. Kameswaran, Eds., pp. 119–128, MERF Publications, 2nd edition, 1999.
8. J. Zakrzewski, "On the etiology of systemic ozena," *Otolaryngologia Polska*, vol. 47, no. 5, pp. 452–458, 1993.
9. M. S. Amreliwala, S. K. T. Jain, R. M. Raizada, V. Sinha, and V. N. Chaturvedi, "Atrophic rhinitis: an inherited

- condition,” *Indian Journal of Clinical Practice*, vol. 4, pp. 43–46, 1993.
10. http://www.medscape.com/viewarticle/735051_3
 11. Z. Lu, X. Xie, and L. Liao, “A preliminary study on etiology of atrophic rhinitis in Zunyi,” *ZhonghuaEr Bi Yan HouKeZaZhi*, vol. 30, no. 1, pp. 41–43, 1995.
 12. L. Mickiewicz, T. Mikulski, W. Kuzna-Grygiel, and Z. Swiech, “Assessment of the nasal mucosa in workers exposed to the prolonged effect of phosphorite and apatite dusts,” *Polish Journal of Occupational Medicine and Environmental Health*, vol. 6, no. 3, pp. 277–285, 1993.
 13. A. Zakrzewski, A. Topilko, and J. Zakrzewski, “Nasal mucosa in the iron deficient state. A clinical and electron microscopic study,” *Acta Oto-Laryngologica*, vol. 79, no. 3-4, pp. 176–179, 1975.
 14. Sampan S. Bist, Manisha Bisht, and Jagdish P. Purohit. Primary Atrophic Rhinitis: A Clinical Profile, Microbiological and Radiological Study. *ISRN Otolaryngology* Volume 2012 (2012), Article ID 404075, 6 pages <http://dx.doi.org/10.5402/2012/404075>.

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