

## ENVIRONMENTAL DEGRADATION AND ITS RELATIONSHIP WITH THE DEVELOPMENT OF GLOBUS PHARYNGEUS IN RESIDENTS OF ABA TOWN IN ABIA STATE, NIGERIA

<sup>1</sup>Udeh, W.C, and <sup>2</sup>Ejikem, P.I.

<sup>1</sup>Department of Medical Biochemistry, University of Port Harcourt, Port Harcourt, Rivers State, Nigeria; <sup>2</sup>Department of Community Health, Abia State University Teaching Hospital, Aba, Abia State, Nigeria.

\*Corresponding author Email: [w.udeh@ymail.com](mailto:w.udeh@ymail.com)

### ABSTRACT

The aim of this study was to determine if stress and environmental factors aid or trigger the development of globus pharyngeus in populations. The work is a 2-year retrospective study in which case files of patients presenting with symptoms of globus pharyngeus at two different health facilities in two different cities -Aba and Umuhia, in Abia State, Nigeria, between February 2012 and February 2014, were studied and compared. The comparison was based on the environmental status of the cities; particularly infrastructure maintenance and environmental cleanliness. These parameters were then used to elicit whether stress and/or environmental degradation, had a major role in the development of globus pharyngeus. The results indicated that stress and environmental degradation, contributed significantly to the development of globus pharyngeus; suggesting the need for action in this regard, by governments and relevant governmental agencies saddled with the task of guaranteeing overall public safety and health.

**Key Words: Globus, Dysphagia, Odynophagia, Environmental degradation, Stress**

Received: 25<sup>th</sup> November, 2015

Accepted: 23<sup>rd</sup> January, 2016

Published: 31<sup>st</sup> January, 2016

### INTRODUCTION

Globus pharyngeus, also known as Globus hystericus or Globus sensation, is the persistent sensation of having a lump in the throat when actually there is none. Some patients feel that a mass or phlegm, a pill or food material or some other sort of obstruction has been lodged in the throat when actually there is none. Globus, a persistent or intermittent non-painful sensation of a lump or foreign body in the throat, is a well-defined clinical symptom that is usually long-lasting, difficult to treat, and has a tendency to recur. This symptom frequently improves with eating and is generally unaccompanied by dysphagia or odynophagia. It is a common condition that accounts for approximately 4% of new referrals to ear, nose and throat (ENT) clinics, and it is reported by up to 46% of apparently healthy individuals, with a peak incidence in middle age. This condition is equally prevalent in men and women, though the latter are

more likely to seek health care for this symptom (Othmer *et al.*, 1985).

Hippocrates was the first to write a note on globus about 2500 years ago while Purcell accurately diagnosed it in 1707 when he postulated that the disease arose from pressure on the thyroid cartilage from contraction of the strap muscles of the neck. The disease was initially described as globus hystericus because of its frequent association with menopause or psychogenic factors; however Malcomson termed it globus pharyngeus in 1968 after discovering that most patients did not exhibit a hysterical personality. The origin of most cases is unknown and symptoms have been attributed to psychogenic causes such as a somatoform or anxiety disorder (Deary, *et al.*, 1995). It may be a symptom of some physical disorders such as reflux laryngitis as well as a classic sign of hysterical neurosis; a psychosomatic disorder characterized by a change or loss of physical function (such as blurred vision or

Udeh and Ejikem, IJCR 2016; 5(1): 31- 39

31

*Endorsed By: Innovative Science Research Foundation (ISREF) and International Society of Scientific Researchers (ISSCIR).  
Indexed By: African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society; and IRMS Informatics India (J-Gate)*



paralysis of the legs) that suggests a physical disorder but instead is an expression of a psychological conflict or need; also the disease has been recognized as a symptom of depression which usually responds to anti-depressive treatments. Because of the uncertain etiology of globus, it has been difficult to establish standard investigation and treatment strategies for affected patients and a careful history is usually taken with nasolaryngoscopy done to rule out the presence of other diseases before a final diagnosis of globus is made (Amin *et al.*, 2008)

Globus is usually a long-lasting and difficult disease with a tendency to recur. Differential diagnosis includes inflammation of one or more parts of the throat such as the larynx or hypo pharynx; hyper tonicity of the cricopharyngeal sphincter resulting in cricopharyngeal spasm, gastro-esophageal reflux disease (GERD), laryngopharyngeal reflux or esophageal versatility (Hill *et al.*, 1997).

In globus patients, swallowing is usually performed normally without any dysphagia nor odynophagia while investigations both physical and diagnostically usually reveal a normal oropharynx and hence its management is often challenging. Because there is a paucity of controlled studies on the treatment of globus, evidence-based treatment concepts are currently not available. There is no single effective treatment plan for the disease and given the benign nature of the condition and the likelihood of long term symptom persistence with absent effective pharmacotherapy, the hallmark of treatment remains explanation and reassurance. Some other established treatment options include antireflux therapy, Speech and language therapy, antidepressants and cognitive-behavioral therapy. (Khalis, 2003). Proton pump inhibitors are used in cases where Gastro-esophageal reflux diseases are established remotely as the cause of globus in the patient (Gatta *et al.*, 2007). The role of electroconvulsive therapy in addition to antidepressants in the management of the disease is still being understudied and appears promising. (Cybulska, 1997).

The aim of this study was to determine if there was a relationship between the development of Globus pharyngeus and residing in a stressful and environmentally degraded city like Aba –a commercial and densely populated town in Aba-North Local Government Area of Abia State, Nigeria. Aba is a town that lack basic amenities such as good roads, potable drinking water supplies, adequate

electricity and power generation plants with dilapidated residential houses and poor drainage facilities resulting in spilling over of the drainages unto roads with the attended foul odors and health risks. These basic infrastructures have all collapsed due to negligence and poor maintenance culture practiced by successive administrations in Abia State; the state under which the commercial and once vibrant town falls under its jurisdiction.

## METHODOLOGY

**Study Area:** This study was carried out in two health facilities located in two different towns of the same State in Nigeria, namely: Federal Medical Center Umuahia and Abia State University Teaching Hospital Aba; both in Abia State, Nigeria.

**Study Design:** This was a retrospective study carried out with medical records of patients residing in Aba town and who presented with Globus pharyngeus at the Abia state University Teaching Hospital (ABSUTH) Aba between February 2012 and February 2014, a period of 2 years. These records were compared with those of patients that presented with similar symptoms at the Federal Medical Centre Umuahia, a facility located in Umuahia, the state capital of Abia state and a town whose infrastructures are fairly and regularly maintained on account of the city being the state's capital.

**Ethical Consent:** The ethical implications of these studies were considered, hence, an effort was made to obtain the consents of the CMDs of both health institutions prior to the onset of the study.

**Data Collection:** Data was by obtained from the medical records of patients that presented with symptoms of globus pharyngeus in both centers between February 2012 and February 2014, and these data were collated and analyzed. The parameters determined by the medical records examined included age, sex, marital status, employment status and general health status of the patients.

**Data Analysis.** Data collected were statistically analyzed and presumptive conclusions made based on the results obtained.

## RESULTS

Within the 2-year period under study, a total of 178 patients resident in Aba were diagnosed with Globus



pharyngeus at the Abia state university teaching hospital (ABSUTH) Aba while only 23 patients resident in Umuahia, the State capital, were diagnosed with the disease at the Federal medical Centre (FMC) Umuahia; thus the ratio of the disease in Aba residents compared to Umuahia residents was 7.7: 1.

In Aba, the results showed that out of the 178 patients seen at Absuth abba, 151 or 84.83% were females while 27 patients or 15.17% were males. No patient was 10 years and below and none was 70 years and above. Two patients or 1.12% were aged between 11 and 20 years; 64 patients or 35.96% were between 21 and 30 years; 95 patients or 53.37% were between 31 and 40 years; 11 patients or 6.18% were between 41 and 50 years; 4 patients or 2.25% were between 51 and 60 years; 2 patients or 1.12% were between 61 and 70 years and no patient was 70 years and above. 62 patients or 34.83% were married while 116 patients or 65.17% were single. Based on their employment status, 32 patients or 17.98% were students; 18 patients or 10.11% worked in public institutes; 34 patients or 19.10% worked in private firms; 3 patients or 1.68% were business people managing medium to large scale business enterprises; 35 patient or 31.19.66% where petty traders while 56 patients or 31.46% of the total patients were unemployed. 7 out of the 178 patients or 3.93% of

the population were hypertensive; 4 patients or 2.25% were diabetic while 22 patients or 12.36% complained of minor ailments such as headache, insomnia and common cold aside the Globus sensation in their throats.

In Umuahia, the results showed that: out of the 23 patients diagnosed with Globus pharyngeus at FMC umuahia, 19 or 82.61% were females while 4 patients or 17.39% were males. No patient was aged below 20 years; 7 patients or 30.43% were aged between 21 and 30 years; 11 patients or 47.83% were between 31 and 40 years old; 2 patients or 8.70% were between 41 and 50 years; 1 patient or 4.35% was between 51 and 60 years; 1 patient or 4.35% was between 61 and 70 years while 1 patient also or 4.35% was above 70 years old. 4 patients or 17.39% were married while 15 patients or 65.22% were single. Based on their employment status, 1 patient only or 4.35% was a student; 4 patients or 17.39% worked in public institutions; 1 patient or 4.35% worked for a private firm; no patient had a medium or a large scale business enterprise; 8 patients or 34.78% were petty traders while 9 patients or 39.13% were unemployed. 4 out of the 23 patients or 17.39% were hypertensive; 2 patients or 8.70% were diabetic; 5 patients or 2.81% had minor ailments while the rest were well except for the Globus

**TABLE 1: AGE DISTRIBUTION OF ALL THE PATIENTS WITH THEIR PERCENTAGES**

Age distribution(years)	Aba Residents		Umuahia Residents	
	Number of patients	% of patients	Number of patients	% of patients
0 – 10	0	0.00	0	0.00
11 – 20	2	1.12	0	0.00
21 – 30	64	35.96	7	30.43
31 – 40	95	53.37	11	47.83
41 – 50	11	6.18	2	8.70
51 – 60	4	2.25	1	4.35
61 – 70	2	1.12	1	4.35
70 and above	0	0.00	1	4.35

Key: % = percentage



**TABLE 2: MARITAL STATUS OF ALL THE PATIENTS WITH THEIR PERCENTAGES**

Marital status	Aba Residents		Umuahia Residents	
	Number of patients	% of patients	Number of patients	% of patients
Single	116	65.17	15	65.22
Married	62	34.83	8	34.78

Key: % = percentage

**TABLE 3: SEX DISTRIBUTION OF ALL THE PATIENTS WITH THEIR PERCENTAGES**

Sex	Aba Residents		Umuahia Residents	
	Number of patients	% of patients	Number of patients	% of patients
Male	27	15.17	4	17.39
Female	151	84.83	19	82.61

Key: % = percentage

**TABLE 4: EMPLOYMENT STATUS OF ALL THE PATIENTS WITH THEIR PERCENTAGES**

Employment status	Aba Residents		Umuahia Residents	
	Number of patients	% of patients	Number of patients	% of patients
Students	32	17.98	1	4.35
Working (private firms)	34	19.10	1	4.35
Working (Public Enterprises)	18	10.11	4	17.39
Business (Petty)	35	19.66	8	34.78
Business (Major)	3	1.69	0	0.00
Unemployed	56	31.46	9	39.13

Key: % = percentage



**TABLE 5: DISTRIBUTION OF OTHER DISEASES IN THE STUDY POPULACE AT ABA AND UMUAHIA**

Other Diseases Present	Aba residents		Umuahia Residents	
	No of patients	% of patients	No of patients	% of patients
Minor ailments only	19	10.67	4	17.39
Hypertension only	3	1.69	2	8.70
Diabetes only	2	1.12	1	4.35
Diabetes & Minor ailments only	0	0.00	0	0.00
Hypertension & Minor ailments only	2	1.12	1	4.35
Hypertension and Diabetes only	1	0.56	1	4.35
Hypertension, Diabetes and Minor ailments	1	0.56	0	0.00
No other disease present except Globus	150	84.27	14	60.87

Key: % = percentage

**DISCUSSION:**

Comparison between the towns of Aba and Umuahia showed that the total number of sufferers of the disease in both towns were 201 patients; 178 patients or 88.56% of total sufferers resided in Aba, while 23 patients or 11.44% of total sufferers resided in Umuahia; an argument which aids in the deduction that environmental stress may have a major contributory role to play in the development of the disease. (Harris *et al.*, 1996). Age distribution showed that the age of onset of the disease was earlier in residents of Aba town than those domiciled in Umuahia, whereby 2 patients or 1.12% of the disease populace were aged between 11 to 20 years old in Aba town while none was seen at that age limit in Umuahia residents; however disease distribution between the 2 towns showed that most sufferers of the disease were aged between 21 and 50 years of age (95.51% of sufferers in Aba and 86.96% of sufferers in Umuahia). It could thus be safely said that the disease is a middle-age disease. The disease preponderance was also higher among females (151 patients or 84.83% in Aba and 19 patients or 82.61% in Umuahia) than in males (27 patients or 15.17% in Aba and 4 patients or 17.39% in Umuahia). This was attributed to the different hormonal changes females undergo cyclically compared to males although this theory has not yet been scientifically proven. (Othmer *et al.*, 1985)

No patient was aged 70 years and above among Aba residents while 1 patient or 4.35% of Umuahia residents was aged 70 years and above; a figure which subtly suggests that Umuahia residents had a higher life span than Aba residents though this is not yet proven too. In terms of social strata, the disease was noticed to have cut across all social classes in Aba whereby 32 patients or 17.98% were students; 34 patients or 19.10% worked in private firms; 18 patients or 10.11% worked in public establishments; 35 patients or 19.66% were petty traders; 3 patients or 1.69% were major business dealers and 56 patients or 31.46% were unemployed; a result which suggests that some other stress was inducing the disease in residents other than economic stress; probably environmental stress. However the case was not the same in umuahia where only 1 patient or 4.35% was a student; 1 patient too or 4.35% worked in a private firm; 4 patients or 17.39% worked in public establishments; 8 patients or 34.78 % were petty traders; no major business dealer was found with the disease and 9 patients or 39.13% were unemployed. This result showed that those that had the disease in Umuahia were mostly those under somewhat economic stress than due to environmental stress. (Deary *et al.*, 1995).

The distribution of other disease elements in the patients other than Globus pharyngeus were recorded as follows; 19 patients or 10.67% had only minor ailments beside the Globus disease in aba against 4



patients or 17.39% in umuahia; 3 patients or 1.69% had hypertension only alongside Globus in aba while 2 patients or 8.70% had the same in umuahia. 2 patients only or 1.12% of aba residents were diabetic aside having Globus while only 1 patient or 4.35% had a similar case scenario in umuahia. 1 patient in aba or 0.56% was hypertensive-diabetic with Globus while 1 patient also or 4.35% of the populace in umuahia suffered similarly. 2 patients or 1.12% had hypertension and minor ailments only plus Globus in aba while 1 patient or 4.35% of the residents in umuahia suffered similarly. No patient with diabetes and minor ailments aside Globus was seen in either town while only 1 patient in aba or 0.56% of the population had hypertension, diabetes and other ailments alongside Globus and none seen in umuahia. The total number of patients without any other disease conditions other than Globus was 150 and constituted 84.27% of all the aba patients while the number of umuahia residents without any other disease condition other than Globus were 14 in number and constituted 60.87% of total residents suffering from Globus pharyngeus. However, statistical analysis showed that the general health status of residents in each town was insignificant ( $p < 0.05$ ) and thus could not be said to be a major contributory factor in the development of the disease (Moloy *et al.*, 1982)

## CONCLUSION

Based on the above facts, it could be said that environmental factors and stress contributed to the development of Globus pharyngeus in individuals; a case made worse by being female and worsened by the single or unmarried status; a scenario seen to be worse off in the environmentally degraded town of Aba when compared to the more organized and fairly maintained town of Umuahia, both in Abia state Nigeria.

## ACKNOWLEDGEMENT:

We wish to acknowledge the help rendered to us by Dr. F.I. Ibiham (Consultant Oto-rhino-laryngologist and former Head of department ENT Surgery, Absuth, Aba) for his immense expert contributions and advice to us in the course of this study.

Udeh and Ejikem, IJCR 2016; 5(1): 31 – 39.

**Endorsed By:** Innovative Science Research Foundation (ISREF) and International Society of Scientific Researchers (ISSCIR).  
**Indexed By:** African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society; and IRMS Informatics India (J-Gate)



## REFERENCES

- Alaani, A. Vengala, S. and Johnston, M.N. (2007). The role of barium swallow in the management of globus pharyngeus. *Eur Arch Otorhinolaryngol*; 264:1095–1097.
- Amin, M.R., Postma, G.N., Setzen, M. and Koufman, J.A. (2008). “Transnasalesophagoscopy: a position statement from the American Bronchoesophagological Association (ABEA),” *Otolaryngology—Head and Neck Surgery*; 138(4): 411–414, 2008.
- Back, G.W., Leong, P., Kumar, R. and Corbridge, R. (2000). Value of barium swallow in investigation of globus pharyngeus. *J Laryngol Otol*; 114:951–954.
- Batch, A.J. (1988). Globus pharyngeus (Part I). *J Laryngol Otol*; 102:152–158.
- Batch, A.J. (1988). Globus pharyngeus: (Part II), Discussion. *J Laryngol Otol*; 102:227–230.
- Brown, S.R., Schwartz, J.M, Summergrad, P. and Jenike, M.A. (1986). Globus hystericus syndrome responsive to antidepressants. *Am J Psychiatry*; 143:917–918.
- Burns, P. and O’Neill, J.P. (2008). The diagnosis and management of globus: a perspective from Ireland. *Curr Opin Otolaryngol Head Neck Surg*; 16:503–506.
- Chen, C.L, Tsai, C.C, Chou, A.S, and Chiou, J.H. (2007). Utility of ambulatory pH monitoring and video fluoroscopy for the evaluation of patients with globus pharyngeus. *Dysphagia*; 22:16–19.
- Cherry, J., Siegel, C.I, Margulies S.I. and Donner M. (1970). Pharyngeal localization of symptoms of gastroesophageal reflux. *Ann Otol Rhinol Laryngol*; 79:912–914.
- Chevalier, J.M, Brossard, E. and Monnier, P. (2003). Globus sensation and gastroesophageal reflux. *Eur Arch Otorhinolaryngol*; 260:273–276.
- Cho, Y.S, Choi, M.G, Jeong, J.J, Chung, W.C, Lee, I.S., Kim, S.W., Han, S.W., Choi, K.Y. and Chung I.S. (2005). Prevalence and clinical spectrum of

gastroesophageal reflux: a population-based study in Asan-si, Korea. *Am J Gastroenterol*; 100:747–753.

Corso, M.J., Pursnani, K.G., Mohiuddin, M.A., Gideon, R.M., Castell, J.A., Katzka, D.A., Katz, P.O., and Castell, D.O. (1998). Globus sensation is associated with hypertensive upper esophageal sphincter but not with gastroesophageal reflux. *Dig Dis Sci*; 43:1513–1517.

Cybulska, E.M. (1997). Globus hystericus--a somatic symptom of depression? The role of electroconvulsive therapy and antidepressants. *Psychosom Med*; 59:67–69.

Deary, I.J., Wilson, J.A. and Kelly, S.W. (1995). Globus pharyngis, personality and psychological distress in the general population. *Psychosomatics*; 36:570–577.

Deary I.J, Wilson J.A, and Kelly S.W. (1995). Globus pharyngis, personality and psychological distress in the general population. *Psychosomatics*; 36:570–577.

Dore, M.P., Pedroni, A., Pes, G.M., Maragkoudakis, E., Tadeu, V., Pirina, P., Realdi, G., Delitala, G. and Malaty, H.M. (2007). Effect of anti-secretory therapy on atypical symptoms in gastro-esophageal reflux disease. *Dig Dis Sci*; 52:463–468.

Drossman, D.A., Li, Z., Andruzzi, E., Temple, R.D., Talley, N.J., Thompson, W.G., Whitehead, W.E., Janssens, J., Funch-Jensen, P. and Corazziari, E. (1993). U.S. householder survey of functional gastrointestinal disorders. Prevalence, socio-demography, and health impact. *Dig Dis Sci*; 38:1569–1580.

Gatta, L., Vaira, D., Sorrenti, G., Zucchini, S., Sama, C. and Vakil, N. (2007). “Meta-analysis: the efficacy of proton pump inhibitors for laryngeal symptoms attributed to gastro-esophageal reflux disease”. *Alimentary Pharmacology and Therapeutics*; 25 (4): 385–392.

Harar, R.P., Kumar, S., Saeed, M.A. and Gatland, D.J. (2004). Management of globus pharyngeus: Review of 699 cases. *J Laryngol Otol*; 118:522–527.

Harris, M.B., Deary, I.J. and Wilson, J.A. (1996). Life events and difficulties in relation to the onset of globuspharyngis. *J Psychosom Res*; 40:603–615.

Harris, M.B., Deary, I.J. and Wilson, J.A. (1996). Life events and difficulties in relation to the onset of globuspharyngis. *J Psychosom Res*; 40:603–615.

Hill, J., Stuart, R.C., Fung, H.K., Ng, E.K., Cheung, F.M., Chung, C.S. and van Hasselt, C.A. (1997). Gastroesophageal reflux, motility disorders, and psychological profiles in the etiology of globus pharyngis. *Laryngoscope*; 107:1373–1377.

Karkos, P.D., Benton, J., Leong, S.C. et al. (2007). “Trends in laryngopharyngeal reflux: a British ENT survey”. *European Archives of Oto-Rhino-Laryngology*; 264 (5): 513–517.

Khalil, H.S., Bridger, M.W., Hilton-Pierce, M. and Vincent, J. (2003). The use of speech therapy in the treatment of globus pharyngeus patients. A randomized controlled trial. *Rev LaryngolOtolRhinol (Bord)*; 124:187–190.

Kiebles, J.L., Kwiatek, M.A., Pandolfino, J.E., Kahrilas, P.J. and Keefer, L. (2010). “Do patients with globus sensation respond to hypnotically assisted relaxation therapy? A case series report.” *Diseases of the Esophagus*; 23 (7): 545–553.

Koufman, J., Sataloff, R.T. and Toohill, R. (1996). Laryngopharyngeal reflux: consensus conference report. *J Voice*; 10:215–216.

Koufman, J.A., Amin, M.R. and Panetti, M. (2000). Prevalence of reflux in 113 consecutive patients with laryngeal and voice disorders. *Otolaryngol Head Neck Surg*; 123:385–388.

Koufman, J.A. (1991). The otolaryngologic manifestations of gastroesophageal reflux disease (GERD): a clinical investigation of 225 patients using ambulatory 24-hour pH monitoring and an experimental investigation of the role of acid and pepsin in the development of laryngeal injury. *Laryngoscope*; 101:1–78.

Kroenke, K. (2007). Efficacy of treatment for somatoform disorders: a review of randomized controlled trials. *Psychosom Med*; 69:881–888.

Udeh and Ejikem, *IJCR* 2016; 5(1): 31 – 39.

37

**Endorsed By:** Innovative Science Research Foundation (**ISREF**) and International Society of Scientific Researchers (**ISSCIR**).  
**Indexed By:** African Journal Online (**AJOL**); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society; and IRMS Informatics India (J-Gate)



- Locke, G.R., Talley, N.J., Fett, S.L., Zinsmeister, A.R. and Melton, L.J. (1997). Prevalence and clinical spectrum of gastroesophageal reflux: a population-based study in Olmsted County, Minnesota. *Gastroenterology*; 112:1448–1456.
- Malcomson, K.G. (1968). Globus hystericus velpharyngis (a reconnaissance of proximal vagal modalities). *J Laryngol Otol*; 82:219–230.
- McGlashan, J. A., Johnstone, L.M., Sykes, J., Strugala, V. and Dettmar, P.W. (2009). “The value of a liquid alginate suspension (Gaviscon Advance) in the management of laryngopharyngeal reflux,” *European Archives of Oto-Rhino-Laryngology*; 266 (2): 243–251.
- Millichap, F., Lee, M. and Pring, T. (2005). A lump in the throat: Should speech and language therapists treat globus pharyngeus? *Disabil Rehabil*; 27:124–130.
- Moloy, P.J. and Charter, R. (1982). The globus symptom. Incidence, therapeutic response, and age and sex relationships. *Arch Otolaryngol*; 108:740–744.
- Moser, G., Wenzel-Abatzi, T.A., Stelzeneder, M., Wenzel, T., Weber, U., Wiesnagrotzki, S., Schneider, C., Schima, W., Stacher-Janotta, G., Vacariu-Granser, G.V. *et al.* (1998). Globus sensation: pharyngoesophageal function, psychometric and psychiatric findings, and follow-up in 88 patients. *Arch Intern Med*. 158:1365–1373.
- Oridate, N., Nishizawa, N. and Fukuda, S. (2008). The diagnosis and management of globus: a perspective from Japan. *Curr Opin Otolaryngol Head Neck Surg*; 16:498–502.
- Othmer, E. and DeSouza, C. (1985). A screening test for somatization disorder (hysteria). *Am J Psychiatry*; 142:1146–1149.
- Park, K.H., Choi, S.M., Kwon, S.U., Yoon, S.W. and Kim, S.U. (2006). Diagnosis of laryngopharyngeal reflux among globus patients. *Otolaryngol Head Neck Surg*; 134:81–85.
- Postma, G. N., Cohen, J. T., Belafsky, P.C. *et al.* (2005). “Transnasalesophagoscopy: revisited (over 700 consecutive cases).” *Laryngoscope*; 115 (2): 321–323. .
- Purcell J. (1707). A treatise of vapours or hysteric fits. 2nd ed. London UK: Edward Place; 1707. pp. 72–74.
- Qadeer, M.A., Phillips C.O., Lopez A.R. *et al.* (2006). “Proton pump inhibitor therapy for suspected GERD-related chronic laryngitis: a meta-analysis of randomized controlled trials,” *American Journal of Gastroenterology*; 101(11): 2646–2654.
- Rey, E., Elola-Olaso, C.M., Rodríguez-Artalejo, F., Locke, G.R. and Díaz-Rubio, M. (2006). Prevalence of atypical symptoms and their association with typical symptoms of gastroesophageal reflux in Spain. *Eur J GastroenterolHepatol*; 18:969–975.
- Rowley, H., O’Dwyer, T.P., Jones, A.S. and Timon, C.I. (1995). The natural history of globus pharyngeus. *Laryngoscope*; 105:1118–1121.
- Sinn, D.H., Kim, J.H., Kim, S., Son, H.J., Kim, J.J., Rhee, J.C. and Rhee, P.L. (2008). Response rate and predictors of response in a short-term empirical trial of high-dose rabeprazole in patients with globus. *Aliment Pharmacol Ther*; 27: 1275–1281.
- Smit, C.F., vanLeeuwen, J.A., Mathus-Vliegen L.M, Devriese P.P, Semin A, Tan J. and Schouwenburg P.F. (2000). Gastropharyngeal and gastroesophageal reflux in globus and hoarseness. *Arch Otolaryngol Head Neck Surg*; 126:827–830.
- Takwoingi, Y.M., Kale, U.S. and Morgan, D.W. (2006). “Rigid endoscopy in globuspharyngeus: how valuable is it?” *Journal of Laryngology and Otology*; 120 (1): 42–46.
- Thompson, W.G. and Heaton, K.W. (1982). Heartburn and globus in apparently healthy people. *Can Med Assoc J*; 126:46–48.
- Timon, C., O’Dwyer, T., Cagney, D. and Walsh, M. (1991). Globus pharyngeus: long-term follow-up and prognostic factors. *Ann Otol Rhinol Laryngol*. 100: 351–354.
- Tokashiki, R., Funato, N. and Suzuki, M. (2010) Globus sensation and increased upper esophageal



sphincter pressure with distal esophageal acid perfusion. *Eur Arch Otorhinolaryngol*; 267:737–741.

Tokashiki, R., Yamaguchi, H., Nakamura, K. and Suzuki, M. (2002). Globus sensation caused by gastroesophageal reflux disease. *Auris Nasus Larynx*; 29:347–351.

Wilson, J.A., Pryde, A., Piris, J., Allan, P.L., Macintyre, C.C., Maran, A.G. and Heading, R.C.

(1989). Pharyngoesophageal dysmotility in globus sensation. *Arch Otolaryngol Head Neck Surg*; 115:1086–1090.

Wilson, J.A., Heading, R.C., Maran, A.G., Pryde, A., Piris, J. and Allan, P.L. (1987). Globus sensation is not due to gastro-esophageal reflux. *Clin Otolaryngol Allied Sci*; 12:271–275.

#### **AUTHORS CONTRIBUTION:**

Dr Udeh Winifred -70% contribution; Dr Ejikem Patricia -30% contribution.

