International Journal of Contemporary Pediatrics
*Ewa AU et al. Int J Contemp Pediatr. 2015 Nov;2(4):450-453*
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20150992

**Case Report**

# The challenges of diagnosing bronchial asthma in very young infants in Calabar, Nigeria

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**Received:** 01 September 2015
**Accepted:** 06 October 2015

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## ABSTRACT

Bronchial asthma can start at any age and is suggested by a recurrent nature of cough with or without wheeze. It is sometimes associated with history of atopic disorders in the patient or family members. There is a lack of global epidemiological data in young infants owing to the challenges in their management, including the variability of their wheezing illnesses, which seems to be the main risk factor for the development of persistent asthma. The diagnosis of asthma in this age group is difficult and as a result, it is most often delayed or denied. Many misconceptions concerning asthma in young infants exist among clinicians, who before now believed the diagnosis should be postponed until the child is older. Some parents and caregivers on the other hand, believe asthma is a bad familial disease that should not be attributed to their children, causing further delays in control. This report aims to highlight not only the existence of bronchial asthma in this group of children but the challenges in their diagnosis and prompt treatment by sharing the experiences from our center. Reports of three cases whose initial presentations started in the neonatal period, 6 weeks and 2 months of age respectively. The diagnosis of asthma was initially missed because of their young ages but with a high index of suspicion, prompt diagnosis and correct treatment, all of them are doing well. The very young infants do have asthma with or without family histories. There is therefore need for early diagnosis and prompt treatment of asthma to reduce pulmonary damage. The challenges of diagnosing and treating asthma in this age group are great and warrant a comprehensive approach, involving all stakeholders.

**Keywords:** Bronchial asthma, Diagnosis, Treatment, Young infants

## INTRODUCTION

Bronchial asthma is a chronic inflammatory disease of the airways characterized by the local production of inflammatory mediators and an increase in recruitment of inflammatory cells.[1] The prevalence rates of asthma has been rising throughout the world, especially among children.[2] It was initially reported to be rare among African children but studies in Nigeria have shown that asthma is far more common than previously thought, being second to pulmonary tuberculosis as the next most common chronic chest disease in children.[3] Asthma can start at any age and is suggested by a chronic or recurrent nature, frequently associated with family history of allergic sensitization and atopic dermatitis.[4]

The diagnosis of asthma in infants is more difficult than in older children or adults.[5] The challenges of diagnosing and treating asthma in this age group are enormous and require a comprehensive approach.[4] Wheezing is common in infants and toddlers but the causes are difficult to diagnose and treat. Congenital causes exist and could be miss-diagnosed as asthma.[4] There are no global epidemiological studies of asthma or wheezy illnesses in children under 5 years of age. The reasons vary from difficulties in making a confident diagnosis,

lack of objective diagnostic criteria, logistical and ethical issues and the variable expression of wheezy illness in this group of children.[6] Also, studies are difficult to conduct in these infants and young children leading to a paucity of data. Available studies show asthma-like inflammation are present at very early age and reduced lung function at 6years of age in those who had persistent wheezing since infancy.[1] The newer lung function tests that require less co-operation (e.g. oscillometry, specific airway resistance) have been in use but these are not readily available in less specialized centers.[7] In Nigeria for example, the facilities and resources for asthma care are below standard, with poor availability of basic infrastructures and diagnostic equipments.[8]

Other challenges identified in asthma management in sub-Saharan Africa include among others, misconceptions and ignorance among parents and caregivers. It is believed and therefore feared that asthma is a familial disease due to astral, spiritual and esoteric influences.[2] This leads to a strong rejection and outright denial of the diagnosis of asthma in these children and it is a setback to effective management/ control of asthma in children in our practice. The failure to recognize the symptoms of asthma in children, particularly young children was also identified as an on-going problem.[9] It is very important that clinicians get the basics right.[10] They should be aware that asthma can occur at a very early age and early diagnosis is very important;[9] asthma is associated with a non-reversible impairment of lung function and so anti-inflammatory agents may be indicated at the onset of the symptoms irrespective of age;[1]and also, asthma could be prevented and treated at the community level by prohibition of smoking in public places, relocation from polluted areas to less polluted areas, improvement in indoor-outdoor air quality, etc.[10] For over 24 years, asthma guidelines have been developing globally to increase awareness of asthma among the health problems, improve asthma management, evaluate published reports on asthma and to promote international collaboration in asthma research.[6] Lack of familiarity with guidelines is a common problem among doctors.[6] The available guidelines do not adequately address the management of asthma in children under the age of 5 in the underdeveloped world where resources are lacking and studies on asthma management are absent.[6] Geopolitical peculiarities should also be considered.[7] It is therefore necessary for regions and countries to consider all the available guidelines and adapt them in their contexts so that the recommendations are in line with available resources in a particular region. This would facilitate their implementation and thus improve the management of asthma in young children around the world.[6]

Reports of three cases whose initial presentations started in the neonatal period, 6 weeks and 2 months of age respectively. The diagnosis of asthma was initially missed because of their young ages but with a high index of suspicion, prompt diagnosis and correct treatment, all of them are doing well.

## CASE REPORT

Case 1, a 4 month old male infant, presented in the Paediatrics Outpatient Department (POPD) of University of Calabar Teaching Hospital (UCTH), Calabar with sudden cough, fast breathing, difficulty in breathing and wheezing about 7 hours duration before presentation. There was a history of intermittent dry cough noticed from birth, worse at night with associated runny nose and itchy nose also from birth as he was known to be rubbing the nose frequently on beddings. He first presented at the age of one month to the POPD with cough, dyspnoea and tachypnoea without fever but asthma wasn't considered at that time. He had once responded to the use of nasal spray. There is a positive family history of asthma in mother and older siblings who have outgrown it. The pregnancy and neonatal histories were uneventful. His delivery was by Spontaneous Vertex Delivery (SVD) with a birth weight of 3.8 kg. He was exclusively breastfed for 4 months, after which breast milk substitutes were added from the 5$^{th}$ month. He is the 3$^{rd}$ and only male of 3 children in a monogamous setting. Physical examination revealed an acutely ill looking baby, in respiratory distress, irritable, afebrile, not pale and acyanosed. With a Respiratory Rate (RR) of 60 cycles per minutes and slightly reduced air entry on both lung fields, and occasional rhonchi. The diagnosis of acute excercebation of asthma with allergic rhinitis was made and he was admitted into the Children's Emergency Unit (CHER). Salbutamol nebulization, Iv hydrocortisone and education of parents concerning the illness were given. He responded to treatment and was discharged 3 days later on syrup Augmentin & Salbutamol inhaler with spacer device. The follow up Visit 1 week later was satisfactory but on the 2$^{nd}$ visit a month later, cough had become more frequent. The diagnosis of mild persistent asthma was subsequently entertained and fluticasone/salmeterol (seretide) evohaler was added to his treatment. He is currently doing well with very good control.

Case 2 is a 5/12 month old female infant who first presented at 6weeks of age with cough & catarrh of 6 days and fever of 2 days and breathlessness of 6 hours duration. The cough was dry, progressively worsened in intensity and severity. The breathlessness was of gradual onset, characterised by in-drawing of chest wall and upper abdomen. The mother had severe preeclampsia at 35 weeks of gestation, delivered a week later by emergency caesarean section with a weight of 2.6kg. He was admitted for jaundice, received phototherapy for 3 days but no antibiotics were given. She was exclusively breastfed. The second of 2 children with negative family history of asthma. The kitchen is close to the mother's room and cooking is with a kerosene stove. Physical examination showed an acutely ill looking child, in severe respiratory distress, dyspnoeic, tachypnoeic,

febrile (38.5), markedly pale with oxygen saturation of 71-74% in room air and 97-100% on oxygen. The RR was 68 cycles per minute with dyspnoea, occasional apnoea and bilateral coarse crepitations. The HR ranged from 180-228b/m, was regularly irregular with S1 S2 and nil murmur heard. The diagnosis of severe bronchopneumonia in heart failure, to exclude congenital heart disease was made. An urgent Packed Cell Volume (PCV) estimation was 25%. The Full Blood Count (FBC) showed leucocytosis, neutrophilia with a marked left shift of the neutrophils. She received parenteral ceftriaxone, gentamycin, frusemide and was transfused with settled cells. Cardiology review considered Acyanotic congenital heart disease but when CXR, ECG & Echo were normal, laryngomalacia and ARI were also considered. He improved remarkably with the treatment and was discharged home 4 days later on antibiotics. At 8 weeks of age, she presented again with cough, noisy breathing and breathlessness of a day's duration and was treated as a case of RTI with antibiotics. At 9 weeks of age, she re-presented with worsening cough, noisy breathing & breathlessness, which had lingered for one week. She was tachypnoic with RR of 72 cycles per minute, in respiratory distress with subcostal recession, transmitted sounds and few crepitations. The diagnosis of bronchiolitis to exclude bronchial asthma was then made. She received steam inhalation and salbutamol nebulisation to which she responded and was discharged home on the next day. At 4months and 1wk, she re-presented with sneezing and cough of a day's duration and was nebulised with symptoms resolution.the final diagnosis was bronchial asthma. She received oral prednisolone and nebulization, then ventolin inhaler given with spacer. She has been without complaints since then and is currently doing well following asthma education.

Case 3, 4 months, male. Presented with cough of three days duration. Cough was recurrent, worse at night with no known aggravating or relieving factors. There was no history of fever, vomiting, catarrh, fast breathing nor inability to suck. However, the history of recurrent cough and difficulty in breathing was noticed since the child was two months of age, each time with spontaneous resolution. There is associated Itchy nose as child more often rubs his nose on beddings since he was two and a half months old. He is the 2$^{nd}$ in a family with no similar history in the immediate family but his father's brother and aunty are asthmatic. His pregnancy, delivery and neonatal period were however uneventful and he is currently feeding on breast milk and breast milk substitutes. For the above reason, he was taken to the Health Centre, given some drugs, with no significant relief, hence the mother brought him to General Hospital, Calabar for further evaluation and management. Physical examination revealed a dyspnoeic child, who was afebrile with a temperature of 37.2°C, not pale, and well hydrated, with a respiratory rate of 72 c/m, chest was symmetrical, moved with respiration with rhonchi mainly in expiratory phase. The abdomen was full, soft, moved with respiration with no organomegaly. The pulse rate was 144 b/m, regular and full volume with a normoactive precordum and normal heart sounds. An initial diagnosis of bronchiolitis was made which was later reviewed to bronchial asthma with allergic rhinitis. He was treated with parental ceftrioxone, gentamycin, hydrocortisone, oral antimalarials and salbutamol nebulization to very good response. He was subsequently discharged and sent home on oral prednisolone, azithromycin and salbutamol inhaler with spacer. He is being followed up in the children's outpatient clinic and is doing well.

## DISCUSSION

The reported cases aim to highlight not only the existence of asthma in the very young infants but to document the challenges faced in diagnosing asthma in these ones. Studies have since shown that asthma is far more common in the Nigerian child than previously thought[3] and that it can start at any age.[4] The challenges of diagnosing asthma in this group of infants are enormous and have been repeatedly documented.[4-9]

All the cases in this study were young infants below 6 months of age who presented within two months of ages. There is a paucity of literature describing asthma in such young infants.[1,6]

Case 1 was reported to have recurrent cough and allergic rhinitis since birth. Even when he presented at one month of age, asthma wasn't considered because of the young age, coupled with a clear chest at presentation. It not unusual in our practice to see patients who had acute exacerbations during the previous night presenting in the daytime with a clear chest. With recurrence of symptoms, diagnosis of mild persistent asthma was eventually made, needing inhaled corticosteroids for control. Irreversible impairment in lung function has been documented from studies of children who have had recurrent wheezing[1] and early use of inhaled corticosteroids have been the mainstay of treatment to prevent long term irreversible impairment of lung function.[1,5]

The first episode of asthma in the very young infant can present as croup or viral bronchopneumonia as seen in Cases 2 who had a multiplicity of diagnosis ranging from respiratory to cardiovascular systems. A negative family history of asthma further confounded the diagnosis. A recurrence of symptoms at 8 weeks just couldn't be missed when it lingered for another one week and couldn't resolve without the help of bronchodilators. Case 3 first presented with bronchiolitis. Following a recurrence of symptoms, asthma was diagnosed which responded to nebulised salbutamol. Studies have shown that asthma is suggested by a chronic or recurrent nature of symptoms, frequently associated with family histories of allergic sensitization.[4] The diagnosis of asthma was not easy and straightforward, especially in Case 2 and wasn't made until after repeated reviews, tests of exclusion and visits. These difficulties are not peculiar to

this environment and have been previously documented as diagnostic or management challenges.[1,2,4-7]

Increased awareness, education, coupled with high index of suspicion is therefore needed by clinicians to overcome the challenges faced in managing asthma in these young infants.[6,10]

## CONCLUSION

The challenges in the management of asthma in young infants in this environment are enormous. There is need for heightened sensitization of all stakeholders in asthma management, including government, public and private health sectors, parents and caregivers. It is hoped that this report will highlight not only the existence of bronchial asthma in this group of children but the challenges faced in their diagnosis and prompt treatment by sharing these experiences from our center. This will hopefully stimulate the formation of policy guidelines on asthma management peculiar to this environment and region, especially for children in general.

## ACKNOWLEDGEMENTS

The authors wish to acknowledge Ms Glory Ekereuke for her secretarial assistance in typing part of the manuscript.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not required*

## REFERENCES

1. Martinez FD. Present and future treatment of asthma in infants and young children. J Allergy Clin Immunol. 1999;104:169-74.
2. Fawibe AE. Management of asthma in sub-Saharan Africa: the Nigerian perspective. Afr J Respir Med. 2008;3(3):17-21.
3. Aderele WI. Bronchial asthma in Nigerian children. Arch Dis Childhood. 1979;54:448-53.
4. Horak E. Wheezing in infants and toddlers: new insights. Wien Klin Wochenschr. 2004;116:15-20.
5. Khemiri M, Barsaoui S. Infancy asthma: diagnostic and therapeutic approach. Tunis Med. 2007;85:715-21.
6. Potter PC. Current guidelines for the management of asthma in young children. Allergy Asthma Immunol Res. 2010;2:1-13.
7. Papadopoulos NG, Arakawa H, Carlsen K-H, Custovic A, Gern J, Lemanske R, et al. International consensus on (icon) pediatric asthma. Allergy. 2012;67:976-97.
8. Desalu OO, Onyedum CC, Iseh KR, Salawu FK, Salami AK. Asthma in Nigeria: are the facilities and resources available to support internationally endorsed standards of care? Health Policy. 2011;99:250-4.
9. Mercer MJ, Van Niekerk CH. Clinical characteristics of childhood asthma. S Afr Med J. l991;79:77-9.
10. Hedlin G, Konradsen J, Bush A. An update on paediatric asthma. Eur Respir Rev. 2012;21:175-85.

**Cite this article as:** Ewa AU, Akpan F, Ntia HU, Okoi-Obuli J. The challenges of diagnosing bronchial asthma in very young infants in Calabar, Nigeria. Int J Contemp Pediatr 2015;2:450-3.