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# Our experience with pre-operative haemostatic assessment of paediatric patients undergoing adenotonsillectomy at Federal Medical Centre, Makurdi

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## ABSTRACT

**Background:** In 2-4% of all patients requiring adenoidectomy, tonsillectomy or adenotonsillectomy, pre-operative screening tests for coagulation disorders are indicated to detect surgical bleeding complications. However, because of cost effect on the patients, the usefulness of these tests is being challenged. We therefore highlight our experience in paediatric patients undergoing adenoidectomy, tonsillectomy or both in our centre. **Patients and Methods:** This is a 3½-year analysis of the data of 165 paediatric patients who had adenoidectomy, tonsillectomy or both over the study period. The data collected included age, sex, procedure done and detailed clinical bleeding history. **Results:** A total of 165 children had either adenoidectomy or tonsillectomy, or both. There were 76 males and 89 females giving a male to female ratio of 1:1.2. Their ages ranged from 10 months to 18 years. Eighty-five (51.5%) patients had adenotonsillectomy, 48 (29.1%) and 32 (19.4%) had only tonsillectomies and adenoidectomies, respectively. Only 11 (6.7%) families volunteered the history of either prolonged bleeding with minor injury on the skin or occasional slight nose bleeding. Six (3.6%) patients including 3 of the children with positive family history had posttonsillectomy bleed, out of which 4 (66.7%) were moderate whereas the remaining 2 (33.3%) were severe bleeding, which was not statistically significant ($P$ = 0.041). The two cases of severe bleeding had fresh whole blood transfused whereas the rest that had no bleeding issues were discharged home 48 h postoperatively. **Conclusion:** Our experience in this study suggests that detailed bleeding history is necessary as well as pre-operative haemostatic assessment, if available and affordable for paediatric patients undergoing adenotonsillectomy.

**Key words:** Adenoidectomy, coagulation tests, emerging centre, pre-operative, tonsillectomy

## INTRODUCTION

Adenoidectomy and tonsillectomy are common otorhinolaryngological surgical procedures in children. In 2-4% of patients requiring adenoidectomy, tonsillectomy or both, there is a danger of serious perioperative or post-operative bleeding that may increase hospital stay and mortality.[1] The ability of coagulation screening test to predict post-operative bleeding is controversial, also clinical history may not predict abnormal coagulation tests.[1-13] While many authors like Schwaab *et al.*,[1] Zwack and Derkay,[2] Asaf *et al.*,[3] Eisert *et al.*,[4] Manning *et al.*,[5] Howells *et al.*,[6] Scheckenbach *et al.*,[7] Close *et al.*,[8] Garcia Callejo *et al.*,[9] and Gabriel *et al.*[10] see pre-operative coagulation screening tests as mere ritual and a waste of scarce resources which do not reliably predict intra- and/or post-operative bleeding which should be used selectively, others like Kang *et al.*,[11] Bolger *et al.*[12] and Schmidt *et al.*[13] support the use of these tests.

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Our centre is an emerging tertiary health institution, located in the North Central region of Nigeria and yet lacks the expertise and equipment to do a full clotting profile such as prothrombin time (PT), activated partial thromboplastin time (APTT) and International Normalized Ratio. It is of interest to note that those who needed this type of screening tests would have to travel to a facility about 350 km away to do them.

We therefore relied fully on bleeding history of both the patients and family alongside the full blood and platelet counts among other routine tests in order to operate paediatric patients who needed these types of procedures. We therefore highlight our experience in paediatric patients undergoing adenoidectomy, tonsillectomy or both in our centre.

## PATIENTS AND METHODS

This is a descriptive retrospective analysis of paediatric patients who had adenoidectomy or tonsillectomy or both at the Federal Medical Centre (FMC), Makurdi, between January 2009 and June 2012. Makurdi is the capital of Benue State and has two tertiary institutions, but only the FMC has a functional ear, nose and throat unit during the period under review.

The state has an area of about 34,059 km$^2$ and is located in the North Central region of Nigeria. It has a population of about 5 million people who are mainly farmers, civil servants and traders. These hospitals also receive patients from parts of the neighbouring states of Nassarawa, Ebonyi, Cross-river, Taraba and Kogi. Ethical clearance was obtained from the Research and Ethical Review Committee of the Benue State University Teaching Hospital, Makurdi, which also covers the FMC.

The case records of 165 paediatric patients who had the type of surgery under review were retrieved, and information extracted included age, sex, positive bleeding histories, full blood and platelet counts, procedure done, intra- and/or post-operative bleeding requiring intervention, estimated intraoperative blood loss and duration of hospital stay with PT and activated partial thromboplastin time (APTT) for those with positive family history.

### Data analysis

Data collected were analysed using Epi info 2000 version 3.3.2 (CDC, Atlanta, GA, USA). Data were expressed as percentages for categorical variable, and means ± standard deviation was used to describe continuous variables. The results were displayed in Table 1 and Figure 1. The Chi-squared test was used to compare proportions.

## RESULTS

A total of 165 paediatric patients had adenoidectomy, tonsillectomy or both. There were 76 males and 89 females, giving a gender ratio of 1:1.2. Their ages ranged from 10 months to 18 years, mean age of 4.92 ± 3.7. Majority of the patients were 5 years and below constituting 72.1% [Table 1].

More than half of these children had adenotonsillectomy, which accounted for 85 patients (51.5%). Tonsillectomy and adenoidectomy each accounted for 48 (29.1%) and 32 patients (19.4%), respectively [Figure 1].

Eleven (6.7%) patients had positive history of either recurrent nose bleeds or prolonged bleeding following minor injury to the skin. Nine (5.5%) carried out the tests of PT and APTT, out of which 8 (4.8%) of them had normal values and 1 (0.6%) had deranged value (PT = 21 s and APTT = 85 s). Two (1.2%) could not do the tests for financial constraints but still had their surgeries which were uneventful.

Two (1.2%) of the eight patients who had normal values of PT and APTT (patient A — PT = 15 s and APTT = 44 s whereas patient B — PT = 13 s and

**Table 1: Age distribution of the patients**

| Age (years) | Number of patients ($n$ = 165) | Percentage |
|---|---|---|
| 0-5 | 119 | 72.1 |
| 6-10 | 33 | 20.0 |
| 11-15 | 10 | 6.1 |
| 16-18 | 3 | 1.8 |
| Total | 165 | 100.0 |

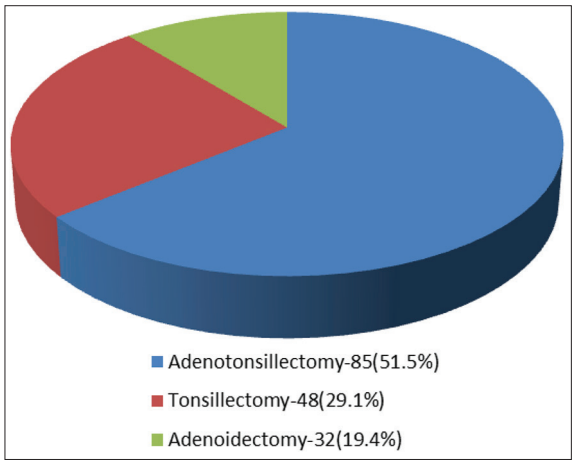



**Figure 1: Different surgical procedures done for the patients**

APTT = 42 s), after the screening tests including the one with abnormal clotting profile were among the 6 (3.6%) that had intra- and post-operative bleeding ($P = 0.041$). The other 3 (1.8%) patients that bled had no positive bleeding history.

Of the 6 (3.6%) bleeding cases, 4 (66.7%) had sutures applied on the surgical sites which controlled the bleeding, whereas 2 (33.3%) had bipolar cautery with transfusion of fresh whole blood before the bleeding was controlled. These two patients were further managed at the intensive care unit. All the severe bleeding cases were discharged between 7 and 14 days postoperatively. The rest had uneventful surgeries and were discharged after 48 h.

## DISCUSSION

About 1% of the general populations worldwide with bleeding disorders are asymptomatic, and it is believed that coagulopathies occur frequently enough to justify pre-operative screening even in the absence of a positive history.[2,10,11] The above finding agrees with that of 3 (1.9%) of our asymptomatic patients who were found to have bled postoperatively. This higher value against the 1% of the general population may arise from our smaller sample size. We observed that one patient (0.6%) with deranged clotting profile preoperatively (abnormal activated partial thromboplastin time [APTT] and PT) still bled postoperatively, which agrees with Howells *et al*'s.[6] second group of 39 patients with prolonged PT/APTT, out of which 2.6% bled and Garcia Callejo *et al*.,[9] who reported that of the 11 (4.13%) post tonsillectomy patients that bled, only one had coagulation screening disorders.

Though statistically not significant, 3.6% of our patients had either intra- and/or post-operative bleeding which conforms to the 2-4% documented in other studies.[1,2,13] In our study, we also found that 2 (1.2%) patients gave positive history of prolonged bleeding following minor injury to skin or recurrent nose bleeding, but had normal clotting profile. They still bled intra- and post-operatively. This agrees with the findings of Schwaab *et al*.,[1] Eisert *et al*.,[4] Howells *et al*.[6] and Scheckenbach *et al*.,[7] who all found that despite normal pre-operative screening tests of their patients, some still bled intra- and/or post-operatively. These findings however contradicted with that of Close *et al*.,[8] whose 2% of patients that had remarkable bleeding neither gave neither positive histories nor abnormal screening tests.

Other principal findings are that majority of patients needing otolaryngological surgical intervention was in the paediatric age group of 5 years and below, accounting for 72.1%, with slight female preponderance. Equally, more than half (51.5%) of these paediatric patients required both procedures at presentation. This finding concurs with that of Onakoya *et al*.,[14] but in contrast, they had male preponderance in their study. Our gender ratio also conforms to the findings of Gerlinger *et al*.[15] in Hungary, who had smaller number of 107 patients in their 2-year study.

### Limitations

Screening of those without family history that bled postoperatively and those who had positive family history, though adjudged normal following screening and had post-operative bleeding should have been rescreened to validate the real status of their coagulation disorder, but distance and cost was a major hindrance.

## CONCLUSION

Though the incidence of bleeding in this study was small and not statistically significant, blood was transfused to avoid mortality.

Although the usefulness of a detailed bleeding history of both the patient and family cannot be overemphasized, in our study, history alone failed to identify 50% of those that had intra- and post-operative bleeding. Likewise, laboratory screening tests have a very low predictive value in detecting occult bleeding disorders or perioperative haemorrhage as seen in two (1.2%) of the patients in this study, hence the need to combine both, if available and affordable.

We therefore advocate that equipment and expertise for running pre-operative haemostatic assessment be made available in all tertiary health institutions carrying out this type of surgeries.

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### Conflicts of interest

There are no conflicts of interest.

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