

## POST EXTRACTION BLEEDING ASSOCIATED WITH LONG TERM MAINTENANCE DOSE OF ASPIRIN 75-150mg

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### ABSTRACT

*The objective of this study was to see post extraction bleeding associated with long term maintenance dose of aspirin 75mg-150mg with out discontinuation.*

*This study was conducted at Lady Reading Hospital Peshawar from January 2009 to June 2010. Patients for simple single tooth extraction and on aspirin (75-150 mg) were included. Patients with systemic disease like hematologic, renal, or liver disease, bone marrow disorders, alcoholism, or any concurrent medication affecting hemostasis such as anticoagulants or anti-inflammatory drugs and patients who needed extractions of deciduous teeth, surgical extractions, extractions in different quadrants, or multiple extractions (>1 tooth) were excluded. Patients were evaluated for immediate and late post extraction bleeding.*

*A total of 254 patients were studied. Patients were categorized into two groups with equal number of patients in each group i.e. 127 each. Group 1 (study) on maintenance dose of Aspirin 75-150mg while group 2 (control) were not taking aspirin. In aspirin group 05 (03.93 %) patients had post extraction prolonged immediate bleeding while 03 (02.36%) were in control group. This difference was not statistically significant ( $p=0.722$ ). In aspirin group 02 (01.57%) patient had late bleeding at 12 hour post extraction while one (0.78%) patient suffered in control group ( $p=1.00$ ). The bleeding was successfully controlled with pressure on gauze and no patient required suturing or re-hospital visit. There was no bleeding in post extraction period at 24 and at 48 hours.*

*It was concluded that simple tooth extraction in patients on long term maintenance dose of 75-150mg aspirin without discontinuation is safe as far as post extraction bleeding is concerned.*

**Key words:** Aspirin, Antiplatelet therapy, Bleeding, Dental extraction

### INTRODUCTION

Acetylsalicylic acid (ASA) or aspirin is commonly prescribed for primary and secondary prevention of cardiovascular disease as it plays an important role in prevention of arterial thrombosis. Antiplatelet therapy was associated with significant 22% risk reduction of a

combined endpoint of myocardial infarction, stroke or vascular death in a large meta-analysis by the Antiplatelet Trialists \_ Collaboration (APTc).<sup>1</sup> Aspirin irreversibly inhibits platelet function lasting for the platelet's lifespan which is approximately 10 days.<sup>2,3</sup> It has been reported that only 20-25% of patients have

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abnormal bleeding time but this may not be clinically relevant because post operative bleeding after dental extraction can mostly be controlled using local hemostatic measures.<sup>4</sup> Previous studies have suggested to stop aspirin before surgery due to prolonged post operative bleeding risk.<sup>5, 6, 7</sup> However, stoppage of this medication may increase the risk of serious thromboembolism, myocardial infarction or cerebrovascular accident.<sup>6, 8, 7</sup> It has been a dilemma of whether antiplatelet therapy should be altered or not before minor oral surgery. Recently several studies have shown that aspirin therapy can be continued and subsequent post extraction bleeding can be treated by local measures.<sup>9, 10, 11</sup> Few studies have evaluated the post extraction bleeding with daily maintenance doses of aspirin in the range of 75 mg to 100 mg. However, there are only few studies in the literature with aspirin doses greater than 100 mg per day.<sup>9</sup> Local literature shows paucity on this subject.

## METHODOLOGY

This study was conducted at Lady Reading Hospital, Peshawar from January 2009 to June 2010. Patients included in this study were those who had indication for simple single tooth extraction and were on aspirin (75-150 mg). Patients with systemic disease like hematologic, renal, or liver disease, bone marrow disorders, alcoholism, or any concurrent medication affecting hemostasis such as oral or parenteric anticoagulants or anti-inflammatory drugs and patients who needed extractions of deciduous teeth, surgical extractions, extractions in different quadrants, or multiple extractions (>1 tooth) were excluded. The study protocol was approved by the hospital ethical committee, and all patients provided informed consent.

At the initial consultation a past medical history, clinical and radiological examinations were recorded. Local anesthetic in the form of 2% lidocaine with 1:100,000 epinephrine was infiltrated in the buccal and palatal or lingual aspect of the teeth for extraction of maxillary and anterior mandibular teeth. Posterior mandibular teeth were extracted under a combination of inferior alveolar nerve block anesthesia and anesthesia infiltration buccally and lingually.

Post extraction sockets were compressed for two minutes and were observed for bleeding. Patients were then asked to bite hard on a piece of sterile gauze for

30 minutes and re-evaluated for the bleeding. If bleeding was still present then a piece of oxidized cellulose gauze (Surgicel) was sutured over the inlet of the post extraction socket, and patients were asked to bite on a pressure pack for 30 minutes and were evaluated for bleeding before discharge. On re-evaluation if patient had no bleeding they were discharged and instructed to be in contact through the phone or report to the hospital casualty. All patients were given appropriate postoperative instructions and were advised to immediately report if any hemorrhagic complications develop. Sutures were removed on 7<sup>th</sup> post extraction days. All patients were prescribed amoxicillin 500mg thrice a day, paracetamol thrice a day for 5 days and were asked to continue their regular dose of aspirin.

Patients were evaluated for immediate, late and very late post extraction bleeding. Prolonged immediate bleeding was defined as use of 2nd hemostatic gauze when blood extended beyond the tooth socket after 30 minutes of biting on a pressure pack. Late bleeding was defined as clinically significant when they extended beyond 12 hours, made the patient call or return to the dental practitioner or to an emergency department, resulted in a hematoma or ecchymosis within the oral soft tissues, or required blood transfusion.<sup>12</sup> Very late bleeding, if oozing occurred at 24 and at 48 hours.

Statistical analyses were performed with SPSS 16.0 (SPSS, Inc., Chicago, Illinois). Numerical variables were presented as mean  $\pm$  SD. Categorical variables were presented as frequencies and percentages. Comparison between two groups was performed by using student-t test for numerical variables and Chi-Square test for categorical variables. P value  $\leq$  0.05 was considered significant.

## RESULTS

A total of 254 patients were studied. Patients were categorized into two groups with equal number of patients in each group i.e. 127 each. Group 1 (study) was those who were on maintenance dose of Aspirin 75-150mg while group 2 (control) was those who were not taking aspirin. There was male predominance in the study group. Baseline characteristic are shown in Table 1.

The various cardiovascular indications for the use of aspirin are shown in Table 2.

The prolonged immediate and late bleeding was successfully controlled with pressure over the gauze and no patient required suturing or re-hospital visit. Table 3 shows the detail of bleeding complication in both groups.

TABLE 1: BASELINE CHARACTERISTICS

Variables	Group 1 (Aspirin (n=127))	Group 2 (Control (n=127))	P-value
Age (mean $\pm$ SD) years	55.86 $\pm$ 10.31	56.74 $\pm$ 9.98	0.489
Male (%)	78 (61.41)	80 (62.99)	0.897
Female (%)	49 (38.58)	47 (37.00)	0.887
<b>Indication for tooth extraction</b>			
Carries	76 (59.84)	73 (57.48)	0.918
Periodontitis	44 (34.64)	46 (36.22)	0.918
Other	07 (05.51)	08 (06.29)	0.918

TABLE 2: INDICATIONS FOR ASPIRIN

S. No	Indication	N (%)
1	Primary Prevention(DM/HTN)	63 (49.60)
2	CABG	18 (14.17)
3	PCI	17 (13.38)
4	Stroke	14 (11.02)
5	AF	05 (03.93)
6	ACS	04 (03.14)
7	DVT	03 (02.36)
8	Other	03 (02.36)

DM (Diabetes Mellitus), HTN (Hypertension), CABG (Coronary Artery Bypass Grafting), PCI (Percutaneous Coronary Intervention), AF (Atrial Fibrillation), ACS (Acute Coronary Syndrome), DVT (Deep Vein Thrombosis)

TABLE 3: BLEEDING COMPLICATIONS

Bleeding Complication	Group 1 (Aspirin)	Group 2 (Control)	P-value
Prolonged Immediate (30 minute)	05 (03.93) Male=03 Female=02	03 (02.36) Male=02 Female=01	0.722
Late Bleeding (at 12 hr)	02 (01.57) Male=01 Female=01	01 (0.78) Male=00 Female=01	01.00
Very Late Bleeding after 24 hr	0	0	—
After 48 hr	0	0	—

## DISCUSSION

Aspirin is widely used for primary and secondary prevention of cardiovascular disease. It can increase the risk of prolonged post operative bleeding.<sup>5,6</sup> It has been always a dilemma for dental surgeon whether or not to discontinue the aspirin for minor surgical procedure like tooth extraction, at the cost of documented thrombotic risk of antiplatelet withdrawal.<sup>13</sup> This study was done on patients who were on maintenance dose of 75-150 mg of aspirin for various cardiovascular disorders and required single tooth extraction.

Long term maintenance dose of aspirin did not increase the risk of post extraction bleeding. It was observed in this study that some patients had prolonged immediate bleeding as compared to control (03.93% vs. 02.36%,  $p=0.722$ ) but this was not statistically significant. This oozing of blood was controlled with pressure on gauze piece. Different studies have reported different incidences of post extraction bleeding. Morimoto et al<sup>14</sup> reported the incidence of immediate bleeding 3.8% as compared to 3.9% of the present study. Similarly Madan et al<sup>11</sup> evaluated post extraction bleeding in 51 patients taking aspirin and found that only one patient had post operative bleeding. Noor reported 3.8% of post extraction bleeding in patients who were on aspirin and had simple tooth extraction.<sup>15</sup> This prolonged immediate bleeding is the same as was in the present study. Serious or life threatening post extraction bleeding complications are very rarely reported in literature<sup>16,17</sup> and this finding is in agreement with the present study results.

Late post extraction bleeding complication was present in 1.57% of the patient. Only one (0.78%) patient had late post extraction bleeding in control group. Similarly, Noor reported almost the same 1.88% of post extraction bleeding in patients undergoing simple tooth extraction while continuing taking aspirin.<sup>15</sup>

No patient in this study had very late bleeding at 24 and 48 hour. Napeñas et al<sup>18</sup> retrospectively evaluated 29 patients and found no prolonged post extraction bleeding as compared to the present study, though they were on dual antiplatelet therapy. Napeñas study has limited value because of retrospective nature and absence of control group. Cardona-Tortajada et al<sup>19</sup> reported late-onset (>24 hours) post extraction bleeding as 17% which were mostly mild and self-controlled.

The reason for this high frequency of late bleeding events may be associated with shorter (10 minutes) post extraction monitoring, as compared to this study. In the present study patients were monitored for at least 30 minutes and re-evaluated for bleeding before discharge. This vigilant post extraction evaluation for bleeding may help to achieve adequate hemostasis resulting in increase procedural safety in patients on aspirin.

Bleeding complication was slightly higher in periodontitis as compared to caries patient. This finding was same as reported by Lillis et al.<sup>20</sup> Local inflammation in relation to local hyperemia and possibly fragility of the blood vessels might predispose to post extraction bleeding. Presence of periodontitis could thus enable risk stratification of patients who are more likely to develop hemorrhage while receiving antiplatelets to ensure a higher index of suspicion and prompt appropriate hemostatic measures.<sup>20</sup>

This study had some limitations. It was done on only aspirin in a dose of 75-150 mg, and not on higher doses of aspirin, secondly this was not compared with other antiplatelet and dual antiplatelet drug. In the present study platelet function testing was not used to assess antiplatelet resistance. Furthermore, only simple and single tooth extractions were studied and not the surgical tooth extraction in the present study.

## CONCLUSION

It is concluded that simple tooth extraction is safer in patients on long term maintenance dose of aspirin, without discontinuing the drug.

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