The availability of the Cliny® rDLT enables more flexible choice of the rDLT or left-sided DLT after considering the side or the type of operation. However, the Cliny® rDLT cannot be used in patients whose right upper bronchus originates directly from the trachea. Fortunately, direct origination of the right upper lobe bronchus from the trachea is relatively rare, affecting 0.1–3% of patients.[4–6]

In conclusion, the Cliny® rDLT can be safely used in patients with a very short right main bronchus.

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Abnormal Bleeding after an Oral Surgical Procedure Leading to Airway Compromise in a Patient Taking a Selective Serotonin Reuptake Inhibitor and a Nonsteroidal Antiinflammatory Drug

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SELECTIVE serotonin reuptake inhibitors block the uptake of serotonin into thrombocytes. One of the functions of serotonin in thrombocytes is to promote platelet aggregation. When serotonin levels are depleted after several weeks of treatment, the altered platelet function leads to prolonged bleeding time, thereby increasing the risk of abnormal bleeding. Selective serotonin reuptake inhibitors may contribute substantially to the burden of abnormal bleeding after surgical procedures in the general population, due to the large number of users of selective serotonin reuptake inhibitors. In patients taking the combination of selective serotonin reuptake inhibitors and nonsteroidal antiinflammatory drugs, the risk of abnormal bleeding is thought to be even higher. We report a case of abnormal bleeding after an oral surgical procedure leading to airway compromise in a patient taking a selective serotonin reuptake inhibitor and a nonsteroidal antiinflammatory drug.

Case Report

A 53-yr-old man presented with a painful ulcerative lesion in the left retromolar area with a diameter of 1.5 cm. Histologic examination of an excision biopsy revealed carcinoma *in situ*, with focally infiltrative squamous cell carcinoma in one of the resection margins. He smoked 20 cigarettes per day and drank 5 units of alcohol per day. He used naproxen, 500 mg twice daily, and for a major depressive disorder he used sertraline, 100 mg once daily.

During general anesthesia, a wide reexcision was performed with periosteal stripping of the mandibular bone. The wound was closed primarily, and hemostasis was reached.

Severe dyspnea developed in the recovery room 1 h postoperatively with upper airway compression due to a large hematoma in the floor of the mouth. Limited access to the airway, due to the massive hematoma, made reintubation impossible. An emergency tracheotomy was performed during local anesthesia.

Postoperatively, sertraline and naproxen were discontinued. Paracetamol combined with codeine was prescribed instead of naproxen. Careful analysis of the patient's medical history elicited multiple episodes of abnormal bleeding after surgical procedures during the use of sertraline: Hemorrhage occurred some days after nasal septal surgery, and prolonged bleeding occurred after tooth extraction and recently after the first excision biopsy of the lesion in the retromolar area. The family history was negative for bleeding disorders.

Laboratory screening tests for hemostasis were performed. The results are listed in table 1. A marked decrease in the level of serotonin in thrombocytes was found.

Discussion

To the best of our knowledge, this case is the first report of life-threatening abnormal bleeding after a surgical procedure associated with selective serotonin reuptake inhibitor (SSRI) and concomitant nonsteroidal antiinflammatory drug use.

Sertraline is an SSRI. SSRIs are used for the treatment of major depressive disorder, obsessive–compulsive disorder, panic disorder, posttraumatic stress disorder, and social anxiety disorder. The mechanism of action of SSRIs is linked to the inhibition of neuronal uptake of serotonin in the central nervous system. Apart from this

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Table 1. Results of the Laboratory Screening Tests for Hemostasis

	Observed Value	Reference Range
Hemoglobin, mM	5.5	8.6–10.7
Hematocrit, l/l	0.26	0.41–0.50
Thrombocytes, $\times 10^9$/l	280	150–450
Prothrombin time, s	12.3	11.5–14.5
Activated partial thromboplastin time, s	34	29–39
Factor VIII, %	171	60–150
von Willebrand factor antigen, %	151	60–130
von Willebrand factor ristocetin, %	116	40–150
ADP-induced aggregation 2.5	Decreased	
ADP-induced aggregation 5.0	Reversible	
Arachidonic acid–induced aggregation 1.5	Normal	
Collagen-induced aggregation 1.0	Normal	
Ristocetin aggregation 0.8E	Absent	
Ristocetin aggregation 1.0E	Normal	
ADP in thrombocytes, μmol/10^{11} thrombocytes	2.5	1.7–3.8
ATP in thrombocytes, μmol/10^{11} thrombocytes	4.8	3.1–7.0
ATP/ADP ratio	1.92	<2.0
Serotonin in thrombocytes, nmol/10^{11} thrombocytes	126	200–600

ADP = adenosine diphosphate; ATP = adenosine triphosphate.

action, SSRIs also block the uptake of serotonin into thrombocytes. One of the functions of serotonin in thrombocytes is to promote platelet aggregation. When serotonin levels are depleted after several weeks of treatment, the altered platelet function leads to prolonged bleeding time, thereby increasing the risk of abnormal bleeding.

Selective serotonin reuptake inhibitors have indeed been associated with abnormal bleeding, particularly with upper gastrointestinal hemorrhage.[1,2] A meta-analysis showed that SSRIs more than double the risk of upper gastrointestinal hemorrhage.[3] Agents with the highest degree of serotonin reuptake inhibition—fluoxetine, paroxetine, and sertraline—are more frequently associated with abnormal bleeding.[4–6]

In surgery, however, the risk of abnormal bleeding associated with SSRIs is not yet clear. With regard to this issue, there is a paucity of data. A fourfold risk was reported in orthopedic surgical procedures,[7] but no effect of SSRIs on risk of transfusion was found after coronary artery bypass surgery.[8] It is conceivable, however, that SSRIs increase the risk of abnormal surgical bleeding.

Selective serotonin reuptake inhibitors may contribute substantially to the burden of abnormal bleeding after surgical procedures in the general population because of the large number of users of SSRIs. Analysis of prescription data shows that there were approximately 760,000 users of SSRIs in The Netherlands in 2004, with 5.5 million prescriptions (total population 16 million). The individual risk of abnormal bleeding after surgical procedures, however, remains difficult to estimate but may be elicited by careful history taking.

Selective serotonin reuptake inhibitors have been associated with abnormal bleeding. In patients taking the combination of SSRIs and nonsteroidal antiinflammatory drugs, the risk of bleeding is thought to be even higher. This may be similar as in patients taking the combination of SSRIs and coumarins,[9] although the synergistic mechanisms may be different.

This case report does not identify a novel problem; the aim is to bring this issue to the attention of anesthesiologists and surgeons. One patient group at risk comprises patients who undergo oral surgical procedures. They frequently use nonsteroidal antiinflammatory drugs for dental infections and should be specifically questioned about the concomitant use of SSRIs. Especially patients undergoing removal of teeth are at risk for hemorrhage because open extraction sockets are notorious for causing prolonged bleeding, compared with surgical wounds, which are primarily closed. Other patients potentially at risk are patients receiving neuraxial blockade or patients undergoing surgery in other enclosed spaces such as the intracranial cavity, the orbital cavity, or joints.

Until more information from larger studies becomes available, heightened awareness of the risk of abnormal bleeding in patients taking SSRIs with or without nonsteroidal antiinflammatory drugs seems reasonable. In these cases, extra caution could be exercised and additional hemostatic measures could be considered.

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