Surgical Experience on Patients with Serum Lupus Anticoagulants
A Report Of Two Cases

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Lupus anticoagulants (LA) are antiphospholipid IgG, IgM, or IgA auto antibodies. When LAs are present, a prolongation of activated partial thromboplastin time is usually found and arteriovenous thrombosis is likely to occur during or after surgery. We report here two LA-positive cases (a 29-year-old male taking chlormpromazine for schizophrenia, and a 44-year-old female diagnosed as systemic lupus erythematosus) who underwent surgical procedures without complications.

(Key Words: Lupus Anticoagulant, antiphospholipid antibody, Surgery.)

INTRODUCTION

With recent rapid advances in medical science, there have been increasing opportunities for orthopaedic surgeons to operate on patients with various complications. Lupus anticoagulants (LAs) are antiphospholipid IgG, IgM and (rarely) IgA antibodies. When LAs are present, a prolongation of activated partial thromboplastin time (aPTT), performed as a preoperative routine coagulation test, is usually found. In addition, arteriovenous thrombosis is likely to occur in cases with LA (9). Various problems, therefore, may occur before, during, or after an operation. In orthopaedics, there have been no reports of operations on patients cases with LA. We report here two LA-positive cases who underwent surgical procedures.

CASE REPORTS

Case 1: A 29-year-old male had been taking 300 mg of chlormpromazine daily for 5 years because of schizophrenia. On February 18, 1987, he attempted to commit suicide by jumping off a balcony and was admitted to our hospital with fractures of the right distal ends of the tibia and fibula and of the left calcaneus. Routine preoperative tests showed that his prothrombin time (PT) was slightly abnormal (11.0 s:control:10.2 s.), and that his aPTT was moderately prolonged (52.8 s:control:30.0 s.). The results of other tests, including platelet counts, were normal. We suspected coagulopathies such as hemophilia, von Willebrand disease, etc., but factors VIII, IX, XI, XII, and platelet aggregation functions were within normal ranges. Mixing the patient's plasma with normal plasma, using standard aPTT, demonstrated the presence of anticoagulants, and the dilute tissue thromboplastin test for LAs was also positive. Based on these coagulation studies, the prolongation of aPTT was considered to reflect the presence of chlormpromazine-induced LA. Anticardiolipin antibodies (aCL) were not examined. On March 1, 1987, arthrodesises of the right ankle and the left talocalcaneal joint were performed. Complications such as abnormal intraoperative or postoperative hemorrhage or thrombosis were not observed, although the patient did not receive treatment with anticoagulants or anti-platelet agents.

Case 2: A 44-year-old female who has been treated with prednisolone since systemic lupus erythematosus (SLE) was diagnosed in February, 1984. In 1987, she developed aseptic
necrosis of the right femoral head. She was admitted to our hospital in June, 1989 for prosthesis. On admission, pancytopenia (RBC 365 × 10^4/mm³, Hb 10.2g/dl, Ht 30.0%, WBC 2900/mm³, platelets 7.0 × 10^4/mm³) was found and aPTT (63.3 s:control:30.0 s.) was remarkably prolonged with normal PT (10.3 s:control:10.2 s.). The activities of various coagulation factors were within normal ranges. The mixing and the dilute tissue thromboplastin tests were positive, suggesting the presence of LA. However, her serum IgG-aCL (2.05 GPL units: normal <5) and IgM-aCL (0.94 MPL units: normal <3), determined by an enzyme-linked immunosorbent assay (7), were negative. On June 18, 1989, prosthesis of the right femoral head was performed without either anticoagulants or anti-platelet therapy, but no specific abnormal signs appeared during or after the operation.

DISCUSSION

Two types of autoantibody anticoagulants have been reported. One of the inhibiting groups binds to a specific coagulation factor (such as factor II, V, VIII, IX, XI, or XII) and can cause bleeding through inactivation of the factor. The other anticoagulant, LAs, are not directed to specific coagulation factors, but bind to phospholipids (PLs) and inhibit formation of the prothrombin-activator complex, which consists of factors II, V, X, Ca++, and PL (11). Therefore, if LA is present, the conversion of prothrombin (II) to thrombin (IIa) is inhibited, and aPTT is usually prolonged in routine coagulation studies, but PT is normal or only mildly prolonged.

LA was first discovered by Conley et al. in patients with SLE (4). Later, LA was shown to be detectable in patients with other collagen diseases, autoimmune diseases, malignant tumors, or infections, and in individuals receiving drugs such as chlorpromazine (CP) (9, 11). We observed prolonged aPTT in 16.7% of SLE patients and 8 (21.1%) of 38 patients who had been taking CP for 2.5 or more years (unpublished observations) Furthermore, we were able to detect LA in 47.6% of SLE patients by using more sensitive assays (8).

When aPTT is prolonged, coagulation disorders such as hemophilia and von Willebrand disease, or the presence of anticoagulants, including LA, are suspected. If correction of coagulation time is not noted by mixing test plasma with normal plasma and coagulation factors are not deficient, LA is suspected. To identify LA, we employed a relatively specific dilute tissue thromboplastin test.

A large quantity of PLs which neutralize LA activity are released from platelet membranes in the human body. In LA-positive patients, therefore, bleeding problems during surgery do not occur if platelet counts or factor II activities are normal (6). Rather, a problem after surgery may be the occurrence of arteriovenous thrombosis, since thrombosis has been reported to occur in 23-57% of LA-positive patients (10). Some individuals with drug-induced LA are also reported to be susceptible to thrombosis (12). A possible association of LA with avascular necrosis of bones, observed in our case 2, has been suggested in SLE patients (1). The precise mechanism of thromboembolic episodes associated with LA is not known yet, but LA may react with PLs at various stages of blood coagulation, including vascular endothelial cell membranes, as reported by Carreras et al. (3).

Thromboembolic episodes associated with LAs have not been extensively studied, but peri-operative problems were not observed in 18 patients with LAs (2). However, prophylactic steps such as early separation from bed and early exercise after surgery should be encouraged in LA-positive cases. In addition, the prophylactic administration of anticoagulants (warfarin or heparin) and/or antiplatelet agents (aspirin) may be required after surgery, as has been reported (5).

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