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(Abstracts)

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SITZUNG I TRAUMATISCHE GEFÄSSLÄSIONEN

V01. Vascular Trauma: In War and Peace

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Background: While it has been repeated many times and recognized by millions, „War is Hell“, it is also appreciated that many of the developments in surgery have resulted in the stern necessity to manage battlefield injured. This has been particularly true in managing vascular trauma in wars of the 20th Century. Confusion that might exist from the definition of “War” can range from World War as “The War to end all Wars” to more recent “Regional Conflicts”.

Methods: Representative military engagements in the 20th century will be selected for this review with a particular emphasis on the contributions that resulted in the improvement in managing vascular injuries under less than ideal circumstances during hostile engagements between armed forces.

Results: Recorded history touches on activities over the past five thousand to six thousand years with the vast majority of this time dedicated to measures to stop hemorrhage on the battlefield. Recognizing that the majority of battlefield vascular injuries have been those involving the extremities because torso/head and neck injuries have frequently been fatal, amputation was the mode of therapy in the 19th Century. From Waterloo to the American War between the States historians have argued into the 20th Century about the over zealous utilization of amputation for extremity injuries in wars of the 19th Century.

The work of many contributed to the changing opportunities that developed at the turn of this 20th Century. *Alexis Carrel* was awarded the Nobel Prize in Medicine in 1912 in great part for his

demonstrations that vascular suture could be successful both clinically and experimentally. *John B. Murphy* of Chicago had performed the first arterial end to end anastomosis in 1896. *Lexer* of Germany had first utilized the autogenous greater saphenous vein for an interposition graft for a missing arterial segment in 1907. Despite these accomplishments it was not until the Korean Conflict in the early 1950's that it was demonstrated that repair of both injured arteries and veins could be successful under less than ideal circumstances by a small number of American surgeons including *Carl W. Hughes* and *Frank C. Spencer*.

This review will start with the Russo-Japanese War of 1904–1905 and the Balkan Wars of 1912–1913 continuing through World War I, World War II, the Korean Conflict and the Vietnam War with notations of a number of other wars where there has been mention of vascular repair of injured vessels. The Vietnam Vascular Registry established at Walter Reed General Hospital in Washington, DC in 1966 continues to hold the largest repository of war time information regarding vascular trauma. While unfinished this effort will be compared to the largest civilian epidemiological study from Houston by *Mattox* and colleagues.

Reports from the Russo-Japanese War of 1904–1905 were written in both German and Japanese. There was particular interest in evaluating and managing arteriovenous fistulas and false aneurysms. *Soubbotitch*, a Serbian surgeon during the Balkan Wars in 1912–1913, along with his colleagues repaired both arteries and veins with the majority of these for arteriovenous fistulas and false aneurysms treated at a later time in hospitals such as the military hospital in Belgrade. The outstanding accomplishments of *Weglowski* have only been identified recently by *Shumacker* recognizing that the majority of the reports were in Polish. *Weglowski* made vascular repairs during World War and in the Polish/Russian fighting in the early 1920's, however, this information was delayed by many years in reaching the English speaking world. He advanced the successful management of arterial and venous injuries as had *Soubbotitch*. During World War I high explosive artillery shells developed in 1915, the lack of blood banking and of transfusions and the lack of antibiotics contributed to the stern necessity of ligation over repair in attempts to salvage life over limb. This approach was