biologische Wirkung entfaltet, bleibt eine offene Frage und ist Gegenstand weiterer experimenteller Untersuchungen.

Summary. Transverse osteotomies of the radius of dogs could be set and perfectly stabilized by means of pressure osteosyntheses. The primary healing process, observed radiologically, corresponds to the histological development of new osteons which, in completely opposed fragments, pass through the fracture and develop from the intact blood vessels and cells of the Haversian canals.

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Role of Ascorbic Acid on Testicular Degeneration in Alloxan Diabetic Rats

Disturbances in the testicular[1,2] and ovarian[3] physiology in diabetes have previously been observed. It has been shown by Siliprandi[4] that the injection of a diabetogenic agent like alloxan caused a marked fall of plasma ascorbic acid level. The role of ascorbic acid in the regulation of sex activity in females[5] and testicular activity in males[6,7] has been discussed. Deb and Chatterjee[8] have recently noticed that the inhibition of estruscycle in alloxan diabetes was corrected by ascorbic acid. The following experiment was designed to determine whether ascorbic acid has similar curative effect on the testicular degeneration observed in alloxan diabetes.

Eighteen healthy mature male rats weighing 140 to 150 g were selected for the experiment. The animals were caged separately and were given a well balanced diet and water *ad libitum* throughout the period of experimentation. The rats were made diabetic by two successive injections of alloxan through intramuscular route. The total calculated dose was 200 mg/kg body weight per animal. Diabetic condition of the animals was verified by the blood sugar estimation from the tail. Diabetic animals were divided into two groups, twelve in the experimental (group I) and the remaining six in the control (group II) group. The experimental group (group I) of animals received a treatment of ascorbic acid (Redoxon, Roche) from the 15th day of the alloxan injection. The calculated dose of the vitamin was 1.5 g/kg body weight per animal per day by the intramuscular route. On the other hand the animals of the control group (group II) similarly received a measured amount of saline injection as control. After three weeks of treatment both the experimental and the control group of animals were killed by cerebral concussion. The testes of these animals were dissected, fixed, sectioned at 7 μ, and stained with hematoxylin and eosin for histological examination.

Histological studies showed a marked degeneration and atrophy of the testis of diabetic animals belonging to the control group (group II). The process of spermatogenesis was blocked and the majority of the tubules were completely free of sperm. The experimental group of animals which received a course of ascorbic acid treatment (group I) had shown a purely normal picture of the testis with all the spermatogenic elements and mature sperm in the majority of the tubules. An atrophy of the seminal vesicle had been observed in the diabetic animals which again appeared normal on ascorbic acid treatment.

From our experimental observation it is clearly seen that the degenerative atrophy of the testis caused by alloxan diabetes can be corrected by ascorbic acid treatment in high doses (complete recovery was not obtained

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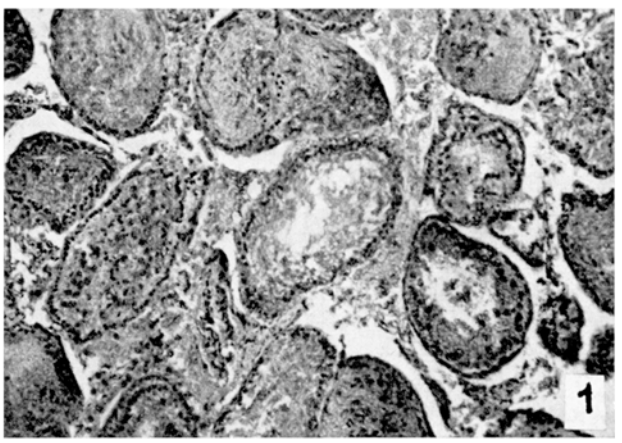

Fig. 1. Testis from the alloxan diabetic rat. Showing the marked degenerative changes (Hematoxylin and eosin). ×96.

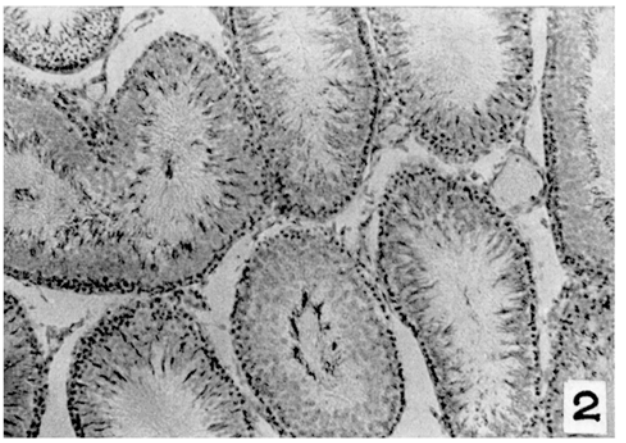

Fig. 2. Testis from the ascorbic acid treated alloxan diabetic rat. Showing a picture of normal testis. Compare with Figure 1 (Hematoxylin and eosin). ×96.

at a lower dose level of the ascorbic-acid treatment, i.e. 1 g/kg per day). Role of ascorbic acid in the maintenance of the testicular[6,7] and ovarian[5] activity has previously been studied. Increased urinary excretion of ascorbic acid in diabetes[9] and a fall in plasma level in alloxan diabetes[4] have been reported. It has been observed by DEB and CHATTERJEE[8] that the inhibition of sex cycle in alloxan diabetic female rats was due to lack of ascorbic acid in the system. Evidence indicates that hyperglycemia may stimulate the pituitary ACTH release[10,11]. Several investigators[12,13] have reported enlargement and increased function of the adrenal cortex of rats made diabetic with alloxan. Competitive inhibition of the adenohypophyseal gonadotrophin activity by excessive production of ACTH has been observed[14,15]. It has been shown that ascorbic acid interferes with the hyperglycemic action of alloxan[16], and also helps in the prevention of adrenal hypertrophy in shock[17]. From the above evidence, it can be concluded that the testicular degeneration observed in alloxan diabetes was primarily due to lack of ascorbic acid in the system[18].

Résumé. On a observé que l'atrophie dégénérative des testicules de rats atteints de diabète provoqué par l'alloxane peut être corrigée par un traitement d'acide ascorbique (vitamine C) administré en hautes doses.

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Serologisch-hämatologische und immunologische Untersuchungen an winterschlafenden Fledermäusen (*Myotis myotis* S.)

Die erhöhte Resistenz der Winterschläfer gegen Infektionskeime und Gifte ist wiederholt Gegenstand der Untersuchungen gewesen. Erst in neuerer Zeit ist das Verhalten der Serumeiweisse geprüft worden. ANDJUS und MATIK[1] untersuchten die Agglutinreaktion beim winterschlafenden Ziesel. Eine orientierende Übersicht über die Arbeiten gibt die *Physiology of Natural Hibernation* von CH. KAYSER (1961). JAROSLOW[2] bestimmte 1961 mit Hilfe von radioaktivem Albumin die Verweildauer antigener Substanzen im Serum winterschlafender Ziesel.

Es ist naheliegend, die Präzipitinreaktion im Serum winterschlafender Tiere zu untersuchen und hämatologische und serologische Befunde mit der Immunitätsreaktion in Zusammenhang zu bringen.

Ergebnisse. Die Untersuchungen erstrecken sich von Januar bis Mitte April und wurden an jeweils 20 Tieren vorgenommen. Die in Tabelle I zusammengestellten Werte beziehen sich auf den Zeitpunkt der Blutentnahme und sind für den ungestörten Schlaf nicht charakteristisch.

Im Serum wacher Tiere traten nach viermaliger Injektion von 0,4 ml globulinfreiem Rinderserum in Abständen von 7 Tagen unter Verwendung von Freudschem Adjuvans deutliche Präzipitate auf (Figur 1a). Zu keiner Präzipitatbildung kommt es bei schlafenden Tieren. Bei den immunisierten, wachen Tieren war die γ-Globulinfraktion im Serum stark vermehrt (Figur 2b). Im Schlafzustand war nach Injektion von RSA keine vermehrte γ-Globulinbildung feststellbar.

Das injizierte Rinderserumalbumin wandert elektrophoretisch schneller als das Albumin der Versuchstiere (Figur 3). Daraus ergab sich die Möglichkeit auch die Verweildauer des Rinderalbumins in den hypothermischen Tieren zu ermitteln (Figur 4).

Diskussion. Wir können bei winterschlafenden Mausohren keine Präzipitinreaktion auslösen. Dies ist hingegen bei wachen Tieren sehr gut möglich. Dieses Ergebnis steht im Einklang mit dem von ANDJUS und MATIK[1] beschriebenen Fehlen der Agglutininreaktion beim lethargischen Ziesel, die ebenfalls die Unfähigkeit der Antikörperbildung beweist. Wir finden eine Verminderung der γ-Globuline im Serum schlafender Tiere[3,4]. Mit Hilfe der

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Tabelle I. Allgemeine Versuchsbedingungen: Mittelwerte der Umgebungs (UT)- und Körpertemperatur (KT), Herz (HF)- und Atemfrequenz (AF) aller untersuchten Tiere (°C)

	UT	KT Haut	KT Rectal	HF/min	AF/min
Schlafend	7,7 ± 0,5	12,9 ± 0,5	12,9 ± 0,7	51,9 ± 4	40,2 ± 2
Wach	24,2 ± 0,7	35,1 ± 0,5	25,7 ± 0,5	182,5 ± 7	164,3 ± 8