

AUTOTRANSPLANTATION OF THE THYROID GLAND

Cojocaru Cristina¹, Bour Alin¹

¹Department of Surgery N.5, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova.

Introduction: Thyroid autotransplantation, where thyroid tissue is relocated within the same individual, is utilized in both human and animal models to preserve thyroid function following thyroidectomy, which aims to prevent permanent hypothyroidism by re-establishing thyroid hormone production. While human studies have focused on clinical outcomes, animal models offer insights into the biological mechanisms and optimal conditions for successful graft survival and function.

Materials and Methods: A comprehensive review was performed using studies from PubMed, and Google Scholar. Both human clinical studies and animal research, particularly on rats, were included. Studies were selected based on criteria that assessed the outcomes of thyroid autotransplantation, including thyroid function preservation, graft survival, histological findings, and complication rates. Animal models provided additional data on experimental techniques, while human studies contributed clinical insights into the effectiveness of the procedure.

Results: In a cohort of 180 patients who underwent thyroid autotransplantation, 82% showed preserved thyroid function post-surgery, with normal TSH and thyroid hormone levels. Follow-up at 1 year showed that 75% of patients remained free of hypothyroid symptoms. In animal studies involving 50 rats, thyroid function was successfully preserved in 85% of autotransplantation cases, with serum T3 and T4 levels within normal range after 12 weeks. TSH levels normalized in 90% of the animals. Histological examination of the transplanted tissue revealed that 70% of grafts in humans maintained structural integrity, with intact thyroid follicles and normal cellular architecture. Histological analysis in rats showed that thyroid follicles in autotransplanted tissue retained normal architecture, with active proliferation. The complication rate was relatively low, with graft failure occurring in 5% of patients. There was a 3% incidence of recurrence of goiter. In rats, complications included graft failure (8%) and tissue hyperplasia in 5% of cases, indicating potential long-term risks.

Conclusion: Thyroid autotransplantation has shown promising results in both human and animal models for preserving thyroid function after thyroidectomy. While animal studies indicate high rates of thyroid function preservation and graft survival, human studies confirm these findings but also emphasize the importance of surgical technique, graft vascularization, and patient selection. The integration of animal model data into clinical practice may improve surgical outcomes, although further research, especially long-term studies, is needed to refine techniques and better predict outcomes in humans.

Keywords: thyroid autotransplantation, thyroid function preservation, postoperative.