further three patients in the IRC group were withdrawn because of the development of colonic carcinoma, Crohn's disease and a fissure-in-ano, requiring anal dilatation. In the remaining 102 patients (50 IRC, 52 RBL) a satisfactory outcome was achieved in 39 (78%) IRC and 44 (85%) RBL patients (X^2 NS).

Both methods were equally effective in first and second degree haemorrhoids (Table I).

References:

(1)Templeton JL, Spence RAJ, Kennedy TL, Parks TG, Mackenzie G, Hanna WA. Comparison of infrared coagulation and rubber band ligation for first and second degree haemorrhoids: a randomised prospective clinical trial. Br Med J 1983; 286:1387–89.

(2)Ambrose NS, Hares Mil, Alexander-Williams J. Keighley MRB. Prospective randomised comparison of photocoagulation and rubber band ligation in treatment of haemorrhoids. Br Med J 1983; 286:1389–91.

(3)Murie JA, Sim AJW, Mackenzie I. Rubber band ligation versus haemorrhoidectomy for prolapsing haemorrhoids: a long term prospective clinical trial. Br J Surg 1982; 69:536–38.

Table I: Symptomatic outcome by degree of haemorrhoid. Figures are numbers (%) of patients.

	Satisfactory	Unsatisfactory	Total
IRC Group:			
First degree	23 (77)	7 (23)	30
Second degree	16 (80)	4 (20)	20
Total:	39 (78)	11 (22)	50
RBL Group:			
First degree	27 (87)	4 (13)	31
Second degree	17 (80)	4 (20)	21
Total:	44 (85)	8 (15)	52

96 Passenger cell depletion of human fetal pancreas using an interim host

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We have recently demonstrated that athymic nude mice can be used as interim hosts for allogeneic and xenogeneic tissues (Surgical Forum 32:372–374, 1981 and Transplantation 36 (6):599, 1983). During the period of interim hosting tissue specific passenger cells disappear and the tissue can be transplanted to allogeneic or xenogeneic recipients without the need for immunosuppressive therapy. In this study we have transplanted human fetal pancreatic tissue (gestational age 10–18 weeks) beneath the kidney capsule of Balb/c nu/nu mice. After 8, 22, and 32 weeks, the animals were sacrificed and the tissue was examined histologically. The composition of the mobile cell popuplation was determined by immuno-peroxidase technique using monoclonal antibodies directed against DR, Thy 1.2 (mouse T lymphocytes and fibroblasts), and Leu 10 (human macrophages and dendritic cells). In addition, staining for insulin was performed.

Results: Histological examination demonstrated that undifferentiated human fetal pancreatic tissue developed into mature appearing islets of Langerhans. The pancreatic mass increased 10–50 fold, with the majority of the tissue consisting of islets, while the exocrine component degenerated. Cells staining positive for DR and Leu 10 decreased while Thy 1.2 positive cells increased. All specimens examined show strong staining for insulin.

Conclusion: Interim hosting of human fetal pancreas in athymic nude mice allows maturation of fetal tissue and simultaneous depletion of human passenger cells. This tissue should be suitable for transplantation into diabetic recipients.

Weeks after Transplantation	DR*	Leu 10*	Thy 1.2*
0	15.5	13.8	> 0.1
8	21.6	21.8	2.8
22	9.0	7.7	34.3
32	3.7	0.5	20.9

* Cells per high power field.

97 Further analyses of pancreas islet immunogenicity, a major barrier to successful islet transplantation

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The strong immunogenicity of the islet grafts, a major barrier to succesful pancreas islet allotransplantation may not only be attributed to major histocompatibility complex class II antigen (Ia) positive passenger cells, but also to Ia antigen expressing vascular endothelial and beta cells. It was the aim of this study to characterize and to quantify those cells that express Ia antigens within normal and activated isolated rat islets. Therefore, a set of 5

monoclonal antibodies (OX2, OX6, OX8, OX19 and W3/25 and 2 polyclonal xenoantisera (antilymphocyte and antidendritic cell sera, the latter cross-reacting with macrophages) were used in combination with a newly devised microscopic procedure for 3-dimensional immunofluorescence evalution of intact iselts. The following results were obtained: (I) Isolated normal rat islets contain defined numbers of Ia positive passenger cells, such as lymphocytes, macrophages and dendritic-like cells. (II) These cell numbers strongly vary from rat strain to rat strain. (III) In addition to the above passenger cells, vascular endothelial and beta cells are also capable of expressing class II antigens. (IV) This expression is strongly influenced by a number of different factors, such as surgical trauma, alloantigenic stimuli, streptozotocin-induced diabetes, in vitro culture and pregnancy. From these results one may conclude the following: (I) Ia expression on beta cells due to the traumatisation of surgical transplantation procedure indicates the possible importance of an optimized technique of islet grafting and possibility also full organ grafting. (II) Each of the above Ia positive islet cells may play a certain, though still unexplained, role in antigen presentation in islet allotransplantation. (III) Bearing in mind the variety of Ia expressing islet cells, the "passenger leucocyte" concept may well be an oversimplification in attempting to elucidate the more complex problem of islet immunogenicity in relation to (pancreas) transplantation.

98 Characterization of the renal subcapsular region as a privileged site for islet cell allotransplantation

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Progress in islet cell allotransplantation (ICA) has been slowed by the lack of suitable site for implantation, which would protect the graft from inevitable rejection, and adequate methods of separation. We have obtained prolonged ICA survival in the canine model, without immunosuppression, by using the renal subcapsulair (RSC) region as a site for ICA placement in initial trials. Recent studies have been conducted to further explore the characteristics of ICA at this site. All mongrel dog recipients were pancreatectomized prior to ICA to the RSC. Pancreases were prepared without collagenase. After flushing with 4 °C Ringers lactate solution, the tissue was minced into 1 cm cubes and pressed through a sterile sieve (1–1.5 mm mesh) with Hank's balanced salt solution (HBSS). The preparation was then washed by two centrifugal washes (4 °C) with HBSS. Pancreatectomized control animals in Gr. I (n=5) were not further treated and survived between 5 and 8 days. RSC-ICA recipients in Gr. II (n=7) were given no immunosuppression and recipients in Gr. III (n=7) received minimal immunosuppression with azathioprine (Aza) (2.5–5.0 mg/kg/day).

Survival in these groups ranged between 5 and >60 days (Gr. II) and 8 – >60 days (Gr. III). Animals in Gr. IV (n=4) were transplanted with skin grafts to the dorsal neck, 2 wks before an RSC-ICA from the same donor. Recipients in Gr. V. (n=4) were given a RSC-ICA followed by a skin graft from the same donor, 1–2 wks. later. No immunosuppression was given in Gr. IV and V and skin grafts rejected in 5–7 days. ICA survival in these groups ranged betwen 20– >60 days (Gr. IV) and 25– >60 days (Gr. V). RSC-ICA recipients in Gr. VI were given a third party skin graft (1–2 wks later) which rejected in 10–11 days with minimal Aza therapy. ICA in Gr. V survived between 23 and >60 days. In summary, prolonged survival of islet cell allografs was again observed with minimal or no immunosuppression. Transplantation of islet cell allografts to the renal subcapsular region did not appear to sensitize the recipients so as to affect a more accelerated rejection of subsequent skin allografts from the same donor. In addition, preliminary sesitization of recipients by skin allografts did not appear to affect ICA survival. The RSC therefore, appears to act as a privileged site for islet cell allotransplantation in the canine model.

99 Effectiveness of Cyclosporin A immunosuppression in vascularized pancreas transplantation of MHC and non-MHC disparate grafts

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As previously described by ourselves non-MHC histocompatibility antigens are capable of inducing rejection responses as strong as those caused by MHC alloantigens (1). This effect is restricted to vascularized pancreas allografts and does not occur after heart or kidney grafting (2). In this study we have investigated whether the alloimmune reactions induced by non-MHC and MHC histocompatibility antigens respond differently to immunosuppression. Rats of the congenic trains AVN, LEW and LEW.1A were used. In appropriate combinations, do-