SUMMARY

The two principal goals in the treatment of perianal fistulas are eradication of the fistulous tract and preservation of sphincter function. In patients with an intersphincteric fistula, these objectives can be achieved by laying open the fistulous tract. Although this procedure affects anal pressure, the functional results are quite satisfactory. The management of fistulas, crossing the upper two-thirds of the external anal sphincter, however, remains a difficult surgical challenge. Treatment of these high transsphincteric fistulas by a traditional laying open technique will lead to an almost complete transsection of a substantial part of the external anal sphincter with wide separation of both ends. To prevent this, several techniques have been developed.

Chapter 1 provides a general introduction to this thesis. In addition, the aims of the thesis are presented.

Accurate preoperative assessment of perianal fistula is necessary for planning the most suitable surgical procedure and therefore enables the surgeon to inform the patient on the type of surgery and its possible complications. Until now, endoanal magnetic resonance imaging is considered to be the superior imaging modality for preoperative assessment of perianal fistulas. Recently three-dimensional endoanal sonography, using hydrogen peroxide as a contrast agent, was introduced as a new technique for the preoperative assessment of perianal fistulas. A prospective comparison of this new technique to endoanal magnetic resonance imaging is described in *Chapter 2*. This comparison reveals that there was agreement between these methods in 92 percent of all cases for the classification of the fistula and the localization of the internal opening. Furthermore, there was agreement in 71 percent of all cases concerning the presence of circular secondary tracts. Therefore it is concluded that the results of 3D endoanal sonography enhanced with hydrogen peroxide and endoanal

magnetic resonance scanning are comparable. The choice of imaging modality can therefore be based on available expertise and equipment.

In *Chapter 3* the results of transanal mucosal advancement flap repair of high transsphincteric perianal fistulas are described. This chapter shows that these fistulas can be treated effectively by transanal advancement flap repair, with an overall healing rate of 75 percent. This procedure, however seems to be less effective in patients with multiple previous repairs. Unfortunately, the continence status deteriorated after this procedure in 35 percent of all patients. This phenomenon may be explained by the fact that the mucosal flap was reinforced with fibers of the internal anal sphincter. However, it seems to be more likely that this impaired continence is caused by overstretching of the sphincter fibers due to the use of the Parks' retractor.

Recently, anocutaneous advancement flap repair of perianal fistulas has been advocated as an attractive alternative to the transanal mucosal advancement flap repair. Some investigators recommend this technique, since this procedure does not result in anatomic alterations of the anal canal. Any future attempts at fistula repair are thus still feasible. Furthermore, no continence disturbances have been reported after this technique. In *Chapter 4* the clinical results of this technique are described. In a consecutive series of 26 patients, the fistula healed in only 12 patients (46 percent). The results of anocutaneous advancement flap repair in patients with no or only one previous attempt at repair are moderate. In patients who have undergone two or more previous attempts at repair the outcome is poor. Furthermore, fecal continence deteriorated after the operation in 30 percent of all patients. Based on the relatively low healing rate and the high incidence of impaired continence, this procedure seems less suitable for high transsphincteric fistulas than transanal mucosal advancement flap repair. Initially, the reported healing after rates after transanal advancement flap repair of perianal fistulas varied between 84 and 100 percent. Recently, however, less

favorable results have been reported. It is still unclear which factors affect the outcome of this technique.

In **Chapter 5,** the results are described of a study aimed at identifying variables affecting the outcome of transanal mucosal advancement flap repair. A relatively large number of patients was included. This resulted in a homogenous group of patients with a cryptoglandular perianal fistula. Eleven variables were assessed and the results were analyzed by multiple logistic regression. To our surprise, none of the variables, evaluated in the present study, affected the outcome of the procedure, except for smoking habits of the patient. In smoking patients the observed healing rate was 59 percent, whereas a healing rate of 79 percent was found in patients who did not smoke. It seems likely that the combined effect of delayed wound healing (mediated by abnormal cellular function and thrombogenesis) and reduced blood flow in the advanced mucosa may result in breakdown of the distal part of the flap in patients who smoke cigarettes.

The incidence of impaired continence, after transanal mucosal advancement flap repair is rather disappointing. It is possible that this is due to the inclusion of some fibers of the internal anal sphincter in the advancement flap. However, it has also been suggested that this effect is caused by the use of the Parks' anal retractor. In **Chapter 6** the results are described of a prospective trial comparing two types of retractors. After fistula repair with a Parks retractor, there is a significantly larger decrease of mean anal resting pressure than after fistula repair with a Scott retractor. Furthermore, the use of a Parks' retractor resulted in an impairment of continence that was not observed in the group of patients who underwent fistula repair using the Scott retractor. Therefore, the use of a Parks' anal retractor should be avoided in the repair of perianal fistulas.

In the early eighties transanal advancement flap repair was advocated as the treatment of choice for patients with a low rectovaginal fistula. Initially, the reported healing rates were very promising. More recently, significantly lower healing rates have been reported. Since we also encountered low healing rates after transanal advancement flap repair for low rectovaginal fistulas, we attempted to improve our results by adding a labial fat flap transposition to the advancement flap repair. *Chapter 7* describes the outcome after transanal advancement flap repair of rectovaginal fistulas with and without an additional labial fat flap transposition. The results can not be improved by addition of such a Martius graft. As of yet it is unclear why this type of repair does not yield the results it has done in earlier reports.

CONCLUSIONS

Based on the findings of this thesis, it is concluded that:

- The results of 3D endoanal sonography enhanced with hydrogen peroxide and endoanal magnetic resonance scanning are comparable.
- The outcome of transanal mucosal advancement flap repair is successful in 75 percent of all patients. This technique is a worthwhile treatment for perianal fistulas
- Fecal incontinence after transanal mucosal advancement flap repair is caused by the use of a Parks' anal retractor, not by inclusion of fibers of the internal anal sphincter.
- The anocutaneous advancement flap repair is not a viable alternative to the transanal mucosal advancement flap repair, since the results are moderate to poor. Furthermore, the incidence of impaired continence is comparable to that after transanal mucosal advancement flap repair.

- Smoking of cigarettes adversely affects the outcome after transanal mucosal advancement flap repair.

- The healing rate of transanal advancement flap repair of low rectovaginal fistulas is poor (less than 50 percent).

- The results of transanal advancement flap repair of low rectovaginal fistulas can not be improved by the addition of a labial fat flap transposition.