anal canal of other physical or chemical stimuli in its contents, in this study continence has been maintained in the absence of the highly specialized anal mucosa.

The anogenital region, comprising the cervix, vagina, vulva, perineum, and anus, has the potential for development of multicentric and multiple primary malignancies.[8] Awareness of the existence of these tumors as a regional disease and the possible long intervals between successive malignancies should be born in mind. The presence of vulvar *in situ* carcinoma should arouse suspicion for a synchronous primary neoplasm elsewhere in this region. The frequent history of infection by the genital wart virus giving rise to condyloma acuminatum in the patients in this study gives plausibility to the theory that some of these viruses may act as a carcinogenic agent on this common epithelium.

Conclusions

Total excision of the anal mucosa with immediate split-thickness skin grafting is a highly satisfactory method of treating *in situ* squamous carcinoma. This procedure has preserved anal function in all patients. At the present time, we would caution against the use of this procedure in patients with an invasive carcinoma until more experience has been gained.

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Discussion

Dr. H. William Scott, Jr. (Nashville, Tennessee): I want to congratulate Dr. Reynolds and his colleagues on developing a multidisciplinary approach that seems to be a very satisfactory solution to a problem that has been treated unsuccessfully very often in the past with radiotherapy and many varied and more radical operative procedures, including removal of the rectum, various and sundry modifications of the Whitehead procedure, plus removal of the perianal skin, and so on, that have resulted in an awful lot of grief for the patient.

I would like to point out also, though, that men can develop Bowen's disease of the perineum, and this is usually associated with perianal condylomata accuminata. Such a patient is now under treatment in the VA hospital in Nashville. At the time of his study and the biopsies of the squamous epithelium of the anal canal, the anus was both grossly and microscopically normal, and did not show any involvement, so a wide perianal excision of skin was carried out with grafting, similar to what Dr. Reynolds has described in women, and this patient temporarily has done fairly well.

But somewhat belatedly, on reexamination of his scrotum, he proved to have very tiny nodules that on biopsy proved to be *in situ* squamous carcinoma. He refused to have his scrotum skinned, so that he is now being treated with topical 5-fluorouracil. I wondered if Dr. Reynolds would comment on whether this is ever a satisfactory method of treating Bowen's disease, or whether this man is going to have to have scrotal skinning before he is cured.

Dr. Maurice J. Jurkiewicz (Atlanta, Georgia): My own and the combined experience in our service with skin grafting the anus and perineum is limited to patients with (1) necrotizing symbiotic infections, (2) hidradenitis, and (3) burns. In these patients the grafts are invariably meshed, and the open technique is mandatory more often than not. In most of the patients the grafting may go up to the sphincter, but seldom beyond, unless a portion of the anus itself is sloughed out.

To my knowledge, this is a unique series, in that the grafting extended to the dentate line and above. It is remarkable, not only that all the patients had a good take and that they regained continence to gas, fluid, and solids, but also that stricture or stenosis did not occur.

Two points, then two questions.

Wounds covered by skin grafts contract up to 60% of surface area. A mucosa-lined conduit of any sort, brought out to a skin interface, has a known high incidence of stenosis unless preventive measures are taken; indeed, often enough in spite of preventive measures: for example, the ileostomy stoma or the perineal pull-through.

Two questions: Is there something unique about the anal canal that prevents a skin graft from shrinking? What is your back-up procedure, should the skin graft fail to take, or partly take, and stenosis occur?

Dr. James J. Madden (Closing discussion): In answer to Dr. Scott's question, certainly 5-fluorouracil has been used in treating carcinoma *in situ*. In the vulva and in the perianal areas, it is very difficult to obtain patient compliance in this. This is a very painful modality, and in using this in the rectal canal, we felt that this would not be a satisfactory solution in this particular area.

I think—in response to Dr. Jurkiewicz's questions—that the entire problem is wound contraction. We have created a surgical defect in this situation that is a contractile, active muscle sphincter. We have chosen to reconstruct this with a split-thickness skin graft, and as Dr. Jurkiewicz points out, the skin graft certainly does contract. I think that the factor here is, basically, the daily normal bowel movement of the patient that allows us to maintain normal dilatation. We have chosen in this situation not to divert the patient before surgery, but to allow this patient to quickly regain a normal bowel habit, which I think is very important for the proper dilatation and maintenance of anal continence in this situation.