

Breast reconstruction and radiation therapy - is it really safe?

7 SEP 2017



BY: FRANK GRAEWE

It has been shown that adjuvant radiotherapy after mastectomy significantly reduces local recurrence rates and improves overall survival in node-positive breast cancer patients. This has led to a steady increase in the use of post-mastectomy irradiation.



Although the positive effects of radiation include killing cancer cells, one of the side effects of is damage to the normal tissue in the radiated field. This can lead to acute radiation changes that improve after six weeks but more importantly there is a chronic component that leads to a gradual and progressive decrease in tissue quality due to DNA damage on a cellular level.

Damage to the reconstructed breast in immediate reconstructions and a disturbed tissue-implant interaction, leading to capsular fibrosis and contracture, are some of the most dreaded side effects. Most studies report

higher complication rates in delayed reconstruction after radiation as well.

Breast reconstruction can be done with the use of own tissue, also called autologous reconstruction or with implants, called prosthetic reconstruction. The third option is a combination of the two, using own tissue combined with implants. Both methods have distinct advantages and disadvantages, and indications.

Complication rates

We know that radiation leads to significantly higher complication rates with implant or prosthetic reconstruction, varying between 6% and 45% in the literature.

Recent trends show that prosthetic reconstruction in conjunction with radiation is increasing steadily despite studies that show much higher complication rates with prosthetic reconstruction compared to autologous reconstruction if radiation is performed.

Reasons cited in favour of prosthetic reconstruction over autologous are the higher costs of the latter, longer recovery times, discomfort at the donor site and a reimbursement-to-effort ratio that favours implant reconstruction.

The question remains, what reconstruction method is safer with radiotherapy?

Studies

A [study](#), published in June 2017, compared healthcare costs in USA between prosthetic and autologous reconstructions in the presence of irradiation. It confirmed that in America at present implant reconstructions are much more frequently performed with radiation than autologous reconstructions and the figures are increasing.

The initial cost per procedure for prosthetic reconstruction is lower than autologous reconstructions. However, implant reconstruction was associated with significantly higher rates of complications and failures than autologous methods and 10% required a flap reconstruction due to implant failure with an overall 12% implant failure rate. Only 5% of autologous reconstruction needed autologous reconstruction after failure.

The added cost due to a failed reconstruction was six times higher in patients receiving implant reconstructions, compared with autologous reconstruction. The authors thus recommend that autologous reconstruction is primarily considered in patients requiring radiotherapy, if

autologous reconstruction is an option for these patients.

The second [study](#) is a prospective look into post-operative morbidity and satisfaction reported by women undergoing immediate and delayed breast reconstruction in conjunction with radiotherapy.

Due to the detrimental effects of radiation on normal tissue, patients undergoing post-mastectomy irradiation therapy have traditionally been offered delayed autologous reconstructions. However, immediate breast reconstruction delivers better cosmetic results and prevents the psychosocial effects of living without a breast for a while. Further, it is well known and has been shown that immediate breast reconstruction does not increase the risk of cancer recurrence.

Complication rates were similar between the delayed and immediate reconstruction group. It concludes that immediate autologous breast reconstruction in the presence of adjuvant radiotherapy is a safe option, if post mastectomy radiotherapy is more targeted and well planned.

The preliminary answer and recommendation from these studies is that immediate and delayed autologous breast reconstructions are safe and cost effective and should be primarily considered in conjunction with radiotherapy.

ABOUT FRANK GRAEWE

Frank Graewe is a plastic, reconstructive and micro surgeon. He has a passion for craniofacial surgery for infants and children, increasing their quality of life and often, their lifespan, and has improved a number of craniofacial surgery techniques in South Africa. He performed the first cell-enriched stem cell therapy procedure in South Africa, and was an integral part of the team that performed the world's first penile transplant at Tygerberg Hospital in 2014.

- Let's talk fat - a plastic surgeon's take - 9 Oct 2017
- Breast reconstruction and radiation therapy - is it really safe? - 7 Sep 2017
- Keloid surgery gives a man his life back - 1 Aug 2017
- What are craniofacial syndromes? - 22 Jun 2016

[View my profile and articles...](#)