INTRODUCITON

Intraoperative use of the Axxent® Electronic Brachytherapy System has been shown to improve precision and reduce treatment time. This is especially important for patients where access is limited, such as in the breast or other sites in the body following tumor resection. Tumor resection is a common procedure in breast cancer treatment, and intraoperative radiation therapy (IORT) can significantly improve outcomes. However, current methods of radiation therapy can be time-consuming and may reduce patient comfort.

Opportunities

Other types of brachytherapy have been used for IORT; however, the issues of limited access and precision are still present. In theory, IORT makes sense biologically and could be envisioned as being attractive for use in standard operating rooms. The benefits of IORT with Axxent® are numerous, including:

- Elimination of the time lapse between surgery and radiation
- Direct visualization of the intervention area which improves precision
- Radiochromic film improves dosimetry and reduces the infection rate.

However, current systems have major problems of limited access, radiation delivery, and utilization.

The Axxent® eBx System has the potential to be equivalent to external radiation therapy systems but with several advantages:

- Rigid cylinders for luminal applications currently FDA-cleared
- Water-filled balloon applicators for treatment of larger areas
- Dose rate and dose distribution were measured for the largest balloon to 1 Gy per minute for the smallest.

RESULTS

The Axxent® eBx System was fabricated. This allowed for the following results:

- Balloon applicators
- Radiochromic film
- Multi-channel applicators
- Cylindrical applicators

CONCLUSIONS

The Axxent® eBx System was shown to be effective and efficient in delivering radiation therapy to specific areas in the body. It offers improved visibility and dose distribution compared to current systems. Further research is needed to fully evaluate its potential and ensure it meets all regulatory standards.

SUMMARY AND CONCLUSION

For further information, please contact Xoft, Inc., Sunnyvale, CA.

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