



Transcript of the video « What are the complications associated with radiotherapy? »

[https://youtu.be/DA4e2e333\\_w](https://youtu.be/DA4e2e333_w)

## What are the complications associated with radiotherapy?

Generally, patients are monitored regularly for five years. We are watching for a possible relapse of cancer or immediate complications from cancer treatments. Beyond that, patients are considered cured and rarely followed, yet they can still face more or less serious pathologies.

### ***Dr. Sylvie DELANIAN Oncologist Radiotherapist, St. Louis hospital:***

When we monitor the patients, generally five years, we'll track down a possible recurrence or complication. Then the patients are free to leave, saying to themselves: we have taken back the daily routine of life; and it is then, that they are no longer assessed. And this is where a neuropathy of lower limbs will take five years to be diagnosed, heart disease or lung disease may never be diagnosed.

### ***Dr. Pierre-François PRADAT Neurologist, La Pitié-Salpêtrière hospital:***

The complications of radiotherapy teach us that these complications can occur years after the environmental aggression; so we understand the complexity of identifying the environmental factors in pathologies.

### ***Dr. Sylvie DELANIAN Oncologist Radiotherapist, St. Louis hospital:***

If there are patients that Americans call "long-term survivors" i.e. cured patients who live long, there can appear potential trouble in the area which received x-rays. For radiotherapy located exactly such as surgery, there may be consequences, positive or negative, but only in the area where we performed the radiation. As a result, there may be complications in connection with this treatment, not because someone was at fault or because of too much treatment but simply because all effective treatment can be sometimes dangerous.

There are small after-effects, grade 1 or 2, extremely minor and fairly frequent. Take the example of breast cancer. A breast a little more pigmented which will be retracted, which is not annoying for life and which will simply leave a scar. However, serious complications I was telling you about earlier, that may occur and which are called sequels, can exist, but from a few months to a few years later, even 5 years, 10 years, 15 years, 30 years after radiation therapy. For irradiation concerning the internal mammary chain, there were, for example, cardiac complications that have been observed in recent years, or for a radiation to the Axilla and sub-clavicular, radio-induced plexopathies. It is exceptional, but it exists. Other complications can be observed, minor or major, in other organs. For example, pelvic irradiation for cancer of the rectum, prostate or the collar, a frequent event is the presence of digestive disorders. Minor, a seat or two a day a little more liquid, major, this may be an occlusion. Therefore, any minor or major event can exist. Major events are very rare but when they do occur are interesting and have nothing to do with an accident.

***Dr. Pierre-François PRADAT Neurologist, La Pitié-Salpêtrière hospital:***

The nervous system is very sensitive to radiotherapy. I would say, it is not so much the nerve cells that are themselves sensitive, it is rather the cells that surround them. We know that for the neurons to work, they need to be vascularized to receive oxygen. They need to protect themselves against infections, so there are special cells for it. And then there are support cells. The nervous system works in a network, so it needs an environment that allows it to maintain the architecture of this network. What happens after radiation therapy, is that this environment of neurons will be disorganized. Then we have, including a decrease in vascularity, neurons no longer having enough oxygen to operate. And all around this neuron will form what is called fibrosis. Fibrosis is like a scar, which will compress the neurons and that will prevent them from being able to push back, because these neurons have an intrinsic ability to reissue extensions, somewhat like the branches of trees they would cut, and well, this fibrosis will create a physical barrier that prevents regrowth of axons. I would say that these are the main effects of radiotherapy, although we still need to do a lot of basic research to understand all the mechanisms.