



4% formalin application for the treatment of radiation induced proctitis: Retrospective chart review of experience and technique in 21 patients

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Abstract

Purpose: Retrospective review of cases from 2000-2005 evaluating the efficacy and technique of formalin instillation for treatment of bleeding caused by radiation induced proctitis. **Methods:** Twenty-one patients underwent 4% formalin instillation after exhausting conventional medical therapy. **Results:** Charts were reviewed from two colorectal surgery groups in Columbus, Ohio. Twenty-one cases were identified between 2000 and 2005. Six practicing colorectal surgeons participated in the study. Mean age of patient population was 70 years (range 50-85). All but one patient studied was male. The indication for formalin instillation was recalcitrant bleeding after prostate irradiation in the male population, and one female with irradiation for cervical cancer. All patients had previous medical treatments with combination of mesalamine suppositories, hydrocortisone enemas, IRC/APC or electrocoagulation. Two patients required transfusions (9.5%). Because of the heterogeneity of the two groups, and individual surgeons, surgical technique varied. Technique of application is classified into three groups: Formalin soaked guaze instillation, formalin irrigation, and a combination of both. Contact time varied from 1-5 minutes, with majority of surgeons applying formalin for 1 minute duration. Eleven of 21 patients (52%) stopped bleeding after first session. Six (29%) required a second treatment for cessation of bleeding after recurrence. Four patients were characterized as partial responders and were further treated with medical management. Thus an 81% success rate was seen with this procedure, in accordance with what is reported by other investigators. Complications from the procedure was seen in 6 patients (28%). Including 1 patient with chemical rectosigmoiditis, 1 patient with tenesmus, 3 patients with rectal pain, and one patient with anal fissure. **Conclusions:** Formalin irrigation is efficacious in the treatment of bleeding caused by radiation induced proctitis and should be used as an adjunct when other conventional therapies have failed. It should be remembered that the procedure is not innocuous and does have local morbidity.

Key words: Formalin instillation and irrigation, radiation proctitis, rectal bleeding.

Resumen

Propósito: Se realizó una revisión retrospectiva de casos del 2000-2005, evaluando la eficacia y la técnica de instilación de formalina al 4%. Para el tratamiento de sangrados causados por proctitis inducida por radiación. **Métodos:** 21 Pacientes se sometieron a instilación de formalina al 4%, después de exhaustivas terapias médicas convencionales. **Resultados:** Los expedientes de dos grupos de cirugía colorrectal fueron revisados en Columbus Ohio. Veintiún casos se identificaron entre 2000 y 2005, seis practicantes de cirujanos colorrectales participaron en el estudio. La población fue en promedio 70 años (50-85), todos excepto uno fueron del sexo masculino. La indicación para la instilación de formalina fue sangrado recurrente después de irradiación prostática en la población masculina y un paciente del sexo femenino por cáncer cervical. Todos los pacientes tuvieron tratamientos médicos previos con una combinación de supositorios de mesalamina y enemas de hidrocortisona, IRC/APC o electrocoagulación, dos pacientes requirieron transfusiones (9.5%), debido a la heterogeneidad de los dos grupos y cirujanos individuales varió la técnica quirúrgica. La técnica de aplicación es clasificada

da dentro de tres grupos; la instilación de una gasa empapada de formalina, irrigación de formalina y una combinación de ambas. El tiempo de contacto varió de 1 a 5 minutos, con la mayoría de cirujanos aplicando la formalina por un minuto de duración 11 de 21 pacientes (52%) se detuvo el sangrado después de la sesión. Seis (29%) requirió un segundo tratamiento para el cese del sangrado, después de la recurrencia 4 (19.0%) pacientes se caracterizaron por responder parcialmente y fueron además tratados con manejo médico, cerca de 81% de rango de éxito se observaron con este procedimiento, de acuerdo con lo que es reportado por otros investigadores. Las complicaciones de procedimiento se observaron en 6 pacientes (28%), incluido un paciente con rectosigmoiditis química, un paciente con tenesmo, tres pacientes con dolor rectal y un paciente con fisura anal. **Conclusiones:** La irrigación con formalina al 4% es eficaz en el tratamiento de proctitis inducida por radiación y debería ser usada como adjunta cuando otras terapias convencionales han fallado. Debería ser recordado el procedimiento, no es inocuo y tiene morbilidad local.

Palabras clave: Instilación e irrigación de formalina, proctitis por radiación, sangrado rectal.

Rectal bleeding is a major complication and difficult problem to control in patients with radiation induced proctitis. The incidence of radiation induced proctitis will only increase with increasing use of radiation for the treatment of pelvic malignancies. Conventional treatments have failed to show good results and thus the use of formalin application has been advocated for this condition. Brown (1969) was the first to use formalin for the treatment of radiation induced hemorrhagic cystitis, with good results. Taking from this experience, Rubinstein and colleagues were the first to apply similar techniques to the distal rectum afflicted with hemorrhagic radiation proctitis.¹ Various articles have been published since then on the case and efficacy of these treatments. This paper discusses our experience with this procedure pointing out good results comparable to the published literature, but emphasizing the inherent morbidity also encountered which is not negligible.

PATIENTS AND METHODS

Charts reviewed from 2000-2005 from the offices of two colon and rectal surgical groups in central Ohio. Twenty one cases were identified in which formalin application was used for the treatment of rectal bleeding recalcitrant to conventional therapy. All patients were treated in the operating room with the use of 4% formalin. Application techniques varied from rigid proctoscope formalin instillations, guaze irrigation and finally a combination of the two. Contact time varied from 1-5 minutes per application and copiously irrigated following application. The anoderm was cautiously protected from the formalin with Vaseline prep.

RESULTS

Mean age of the study population was 70 (range 50-85). All but one patient was male. Prostate cancer was

the indication for radiation in the male population and the one female patient received radiation for cervical cancer. Eleven (52%) patients stopped bleeding after first session. Six (29%) required a second treatment for complete response. Four patients were considered partial responders and further progressed with intermittent bleeding that required continued medical management. Overall 81% success rate is reported in this study, which is in accordance with the literature. Morbidity was not negligible. Six (28%) patients had complications. The most severe complication included 1 patient admitted to the hospital for observation with chemical rectosigmoiditis secondary to proximal reflux of formalin. Rectal pain was experienced in 3 patients. Tenesmus was noticed by one patient. An anal fissure post procedure was seen in one patient. These complications have been reported in the literature in varying rates of occurrence.

DISCUSSION

Radiation proctitis is a complication of ionizing radiation given for various pelvic malignancies. The rectum is uniquely vulnerable due to its fixed position in the pelvis. Chronic radiation changes can be seen in 1-20 percent of these patients.² Mucosal changes in the lower rectum caused by this radiation induced endarteritis causes the mucosa to be friable and bleed easily. Conventional treatments include but are not limited to hydrocortisone, sulfasalazine, mesalamine and sucralfate enemas. Short chain fatty acids have been used. Irc and laser fulguration have been applied to hemorrhagic proctitis. Fulguration is effective, but usually requires multiple sessions to control all bleeding point and also has its inherent morbidity. Formalin application has been gaining acceptance due to its efficacy and ease of use. Applications can be repeated for recurrent bleeding, with relative good results and further

hastening continued bleeding. An advantage of formalin over fulguration is that on application to the distal rectum it affects all areas that are bleeding or prone to bleed. Also the procedure usually is effective with just one application. Formalin works by causing a chemical cauterization of the friable bleeding mucosal tissue. Complications to this procedure are minimal, but are not negligible and should always be kept in mind. The optimal method of application has not been well described. Distal reflux of formalin has been described in previous articles and is caused when the rigid sigmoidoscope is used for instillation. Overdistention of the distal rectum with subsequent reflux of formalin should be avoided. We have modified our technique somewhat when instilling by this method and try to avoid overdistention of the rectum. A 4 x 4 guaze may also be placed proximally so as to catch any effluent tracking proximally.

CONCLUSION

The use of formalin application for the treatment of bleeding radiation proctitis has been reported to be efficacious. The current study also demonstrates good results. With the increasing use of radiation treatments for pelvic malignancies the incidence of radiation proctitis will only increase. Formalin adds another dimension to the existing therapy that can be used for this vexing problem. It should be remembered that the procedure is not innocuous and does have local morbidity.

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