

Peer Review File

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Reviewer A

This is a compact and interesting contribution on the topic of a rare cancer syndrome, MPS. The manuscript is very well written.

Although the authors acknowledge the small numbers in their study, it is true that the small numbers could lead to statistical perturbations. However, within this limitation and the fact that the study cannot control for other interventions which could easily have skewed their results (eg, use of radiotherapy for instance), the results are intriguing if not compelling.

Comment 1: What was the timing of onset and peak opioid dose for the two groups? Could this also have influenced the results?

Reply 1: Thank you for your insightful comments. Your suggestion have gave me a chance of well revision. We have added the following sentences (see page 6, lines 97-99).

Changes in the text: Four patients in group MA, and all patients in group MB had taken opioids before consultation. The mean period from consultation to pain control was higher in Group MB (6.67 ± 3.0 days) than in Group MA (18 ± 7.3 days; $p=0.012$).

Comment 2: Suggest that the title can be more affirmative, such as: 'The lesion site in malignant psoas syndrome influences cancer pain intensity'.

Reply 2: Thank you for your insightful comments. We have changed the tile as your suggestion(see page 1, line2).

Changes in the text: The lesion site in malignant psoas syndrome influences the cancer pain intensity.

Comment 3: P2 lines 11 and 31. '..ethics board of XXX' – state the institution name before the approval number.

Reply 3: Thank you for your insightful comments. We have added the details of ethics board (see page 3, line45, page 5, line66).

Changes in the text: *Nagasaki University Hospital review board of 16052314-3*

Comment 4: Did any patients have PET/CT scans? These could be shown in Fig 1.

Reply 4: Thank you for your insightful comments. All of our patients had CT scan, and we presented the typical image of each group. We add the following sentence(see page 3, line45, page 5, line77-79).

Changes in the text: We used computed tomography (CT) scan for the diagnosis of MPS, because most of MPS patients couldn't keep supine for the long time. We started pain control of MPS patients with opioids due to consultation from oncologist.

Comment 5:P4 line 17/18. Sense of this sentence?

Reply 5: Thank you for your insightful comments. We have removed the sentence you suggested(see page 8, line138-139).

Comment 6:P4 line 24. Remove word 'study'.

Reply 6: Thank you for your insightful comments. We have removed the word you suggested(see page 8, line144).

Comment 7 :Table 1: Isn't 'Colorectal' a subset of 'Gastrointestinal'?

Reply 7: Thank you for your insightful comments. We have changed the word as your suggestion(see page 10, line195. Table 1).

Changes in the text: from "Colorectal" to "Gastrointestinal"

Comment 8 :There are many other reports of MPS which have not been cited. The References should be expanded.

Reply 8: Thank you for your insightful comments. We have added the other reports in the reference.

Reviewer B

This is an interesting study about MPS. The difference in MEDD is quite surprising.

Comment 1:Please correct the paragraph in the discussion: "Because pain control strategy is along to each institution."

Reply 1: Thank you for your insightful comments. We have removed the sentence you suggested(see page 8, line138-139).

Comment 2 :Can the authors include a paragraph to describe how the knowledge gained from this study will help personalize pain management to patients seen with muscle belly lesions in the future? Examples are rapid titration of doses, offer interventional pain management, etc.

Reply 2: Thank you for your insightful comments. We want to emphasize the pain control of patients of MPS is not only to recover their QOL, but also to return to the cancer therapy. We add the following sentences(see page 7, line112-117, page 8, line 148-152).

Changes in the text:" Unless MPS patients are controlled pain, they can't undergo cancer examination and therapy such as Magnetic Resonance Imaging and radio therapy, because most of MPS patients couldn't keep supine for the long time (8). This study indicated the MPS, especially the patients seen with muscle belly lesions need a large amount of analgesics and long period for pain control. We should consider the interventional pain management and rapid opioid titration as Scarborough BM, et al reported(9)."

“Our results indicate that MPS patients with lesions in the muscle belly need longer period and higher opioid doses for pain control than MPS patients with lesions involving the muscle attachment and contribute to rapid titration of opioid dose, offer interventional pain management. Predicting whether an MPS patient will need high-dose opioids in the early period of pain control is meaningful for optimizing patient comfort and restoring the patients to cancer treatment via their PS recovering.”

Reviewer C

Comment 1: MPS is an important condition but the manuscript would be limited benefit due to limited information due to retrospective design, small sample, heterogenous cancers, single center, and limited treatment details. This includes limited details in of MPS in introduction section, assessment of cancer pain such as no provision of details the pain characteristics including associated symptoms such as anxiety, depression, opioid misuse. The criteria for pain control doesn't have a clear time range at which pain is controlled.

Reply 1: Thank you for your insightful comments. We have evaluated the psychologic condition with psycho-oncologist and our patients didn't have the significant problem. We added the following sentences (see page 6, line 95-99).

Changes in the text: No patients had severe psychophysiological problem.

Four patients in group MA, and all patients in group MB had taken opioids before consultation. Patients of each group were given opioids via intravenous from consultation. The mean period from consultation to pain control was higher in Group MB (6.67 ± 3.0 days) than in Group MA (18 ± 7.3 days; $p=0.012$).