



## Quality insurance in head and neck cancer multidisciplinary team meetings: A watchful eye on real-life experience

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### ABSTRACT

**Introduction:** Although Multidisciplinary Team Management (MDT) is integrated in most international head and neck cancer treatment guidelines, its applications and proceedings were rarely described. The present study explores a 6-year real-life experience in a French Comprehensive Cancer Care Center.

**Methods:** Patients, tumor and meeting characteristics of all consecutive cases discussed in head and neck MDT meetings between 2010 and 2015 were retrospectively reviewed.

**Results:** From 2010 to 2015, 1849 cases (accounting for 1786 patients) were discussed in 138 MDT meetings. Median age was 62 (range: 15–96). When reported ( $n = 310$ , 16.8%), performance status was  $\geq 2$  in 36.1% of patients. Tumors were mainly squamous cell carcinomas ( $n = 1664$ , 91.5%) of the larynx/hypo-pharynx ( $n = 630$ , 34.4%), oropharynx ( $n = 518$ ; 28.3%) and oral cavity ( $n = 339$ ; 18.5%). Tumors were diagnosed at a locally ( $n = 358$ , 25%), locally advanced ( $n = 946$ , 66%) or metastatic setting ( $n = 53$ , 3.7%). Mean number of discussed patients per MDT meeting was 16 (range: 3–32). Most patients were discussed once ( $n = 1663$ , 97%). Most patients ( $n = 969$ , 52%) underwent treatment before MDT meetings: mainly surgery ( $n = 709$ , 73.2%). The mean time between MDT meeting and first radiation course was 21 days (range: 1–116).

**Discussion:** Optimal multimodal treatment management is based on MDT meetings and results from the interaction and coordination of surgeons, medical and radiation oncologists. In the present series, most patients were discussed once despite the number of expected recurrences, suggesting that the management of tumor progression was not discussed in head and neck MDT meetings. Furthermore, most patients had surgery before MDT meeting, pointing out that MDT role and place still needs to be improved. Finally, the present population significantly differed from patients included in phase III clinical trials, with more advanced age and poorer condition. It calls for the necessity of a high-quality head and neck MDT meeting since evidence-based recommendations should be adapted to patient's frailties.

### Introduction

Head and Neck cancer (HNC) is an aggressive disease, with 50% of loco-regional recurrences or distant metastasis [1]. Its management requires the close coordination of health professionals especially surgeons, radiation and medical oncologists [2]. The selection of the optimal strategy recently became even more complex with multiple possibilities resulting from advances in surgery, radiotherapy, and systemic

therapies. Therefore, determining “the right treatment for the right patient” is certainly hard to achieve for an isolated physician [3]. Many countries developed a dedicated meeting called Multidisciplinary Team meeting (MDT meeting) in order to select the most appropriate therapeutic strategy for each patient, and coordinate the patient's surgeon and oncologists. In France, MDT meetings became mandatory in the early 2000s [4]. Their evaluations proved that MDT meetings impacted treatment strategies [5–7] and even improved HNC patient's survival

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[8]. While MDT is now integrated in all international HNC treatment guidelines, its daily-routine applications and proceedings have actually rarely been described. Although the benefits of MDT are clearly supported by evidence [9], its implementation and the maintenance of its quality can be quite challenging in daily routine. The main obstacles are: the time-consuming nature of such a meeting, the difficulties in synchronizing physicians' availabilities, the complexity of a transversal communication, the concern that MDT could delay treatment, and sometimes the necessity of an urgent treatment [10].

The aim of the present study was therefore to report on the characteristics and assess the quality of a real-life HNC MDT meeting in a French comprehensive cancer care center.

**Methods**

*Study design*

A retrospective study was conducted at the Lucien Neuwirth Comprehensive Cancer Center. The institutional ethics committee approved the study which was conducted in compliance with the Helsinki Declaration.

*Study endpoints*

Data were collected from consecutive detailed records produced during each MDT meeting from 2010 to 2015. MDT characteristics were reported namely the number of cases discussed per meeting, the number of discussion per patients, the number of medical specialists attending the meeting, their academic or private exercise, and the choice of treatment. Clinical characteristics were collected namely the age, gender, performance status, status at case presentation, cancer stage, anatomical localization and histology. Prior oncological treatment before MDT was also reported. Time between MDT meeting and planning computed tomography (CT)-scan was collected as well as time between planning CT-scan and first radiation course and, time between MDT meeting and first radiation course.

**Results**

From 2010 to 2015, 1849 cases (from 1786 patients) were discussed in 138 MDT meetings.

*Patients and tumor characteristics*

The median age was 62 (range 15–96) with 1449 males (78.4%) and 400 females (21.6%). ECOG performance status (PS) was available for 310 patients (16.8%). A total of 198 patients (63.9%) had an ECOG PS 0–1 and 112 patients (36.1%) an ECOG PS ≥ 2. Weight (n = 4; 0.01%), alcohol (n = 54; 3%) or tobacco (n = 72; 3.9%) intoxications were rarely reported. When smoking status was known, 84% were active smokers (n = 61). Primary tumor location was reported in 1833 cases (99.1%). They corresponded to laryngeal or hypo-pharyngeal (n = 630; 34.4%), oropharyngeal (n = 518; 28.3%) and oral cavity (n = 339; 18.5%) cancers. Histology was available in 1819 cases (98.3%). They were mainly squamous cell carcinomas (n = 1664; 91.5%). Information on the TNM staging was available in 1433 cases (77.5%). Three hundred and fifty-eight patients (25%) were stage 0-II, 999 patients (69.7%) were stage III-IV and 76 patients (5.3%) were impossible to stage due to at least one undetermined TNM component. Patients and tumor characteristics are detailed in Table 1.

*MDT meetings characteristics*

A total of 1663 patients (97%) were discussed once and 52 patients were discussed twice (3%). Most discussions considered the selection of a first treatment (n = 1368 cases; 73.9%). The mean number of clinical

**Table 1**  
Patients and tumor characteristics (cases discussed in HNC MDT meetings).

Characteristics	n	%
<i>Age, Years</i>		
Min	15	–
Max	96	–
Median	62	–
Patients over 65	668	37.4
Patients over 70	435	24.4
<i>Gender</i>		
Male	1449	78.4
Female	400	21.6
<i>ECOG Performance Status</i>		
0	48	15.5
1	150	48.4
2	73	23.5
3	34	11.0
4	5	1.6
NA	1537	83.1
<i>Status at case presentation</i>		
Primo-Diagnosis of local/lacolly advanced cancer	1314	71.2
Primo-Diagnosis of metastatic cancer	54	2.9
Loco-Regional Recurrence	313	17.0
Loco-Regional and Metastatic Recurrence	68	3.7
Metastatic Recurrence	85	4.6
Other	12	0.7
NA	3	–
<i>Stage</i>		
0	21	1.5
I	144	10.0
II	193	13.5
III	221	15.4
IV	778	54.3
Non-applicable	76	5.3
Non-available	416	25.5
<i>Primary tumor location</i>		
Hypo-Pharynx/Larynx	630	34.4
Oro-Pharynx	518	28.3
Oral Cavity	339	18.5
Naso-Pharynx	101	5.5
Unknown Primary	65	3.5
Salivary Glands	62	3.4
Other	105	5.7
Synchronous Cancer	13	0.7
NA	16	–
<i>Histology</i>		
Epidermoid Carcinoma	1664	91.5
Adenocarcinoma	33	1.8
UCNT	10	0.5
Merckel	1	0.1
Other	111	6.1
NA	26	–
<i>Smoking status</i>		
Active smoker	61	3.3
Non smoker	11	0.6
Not reported	1777	96.1

cases discussed per MDT session was 16 (range 3–32). Surgeons (mean 3, range 0–8), medical oncologists (mean 1.6, range 0–4) and radiation oncologists (mean 1.1, range 0–3) were mainly represented. Radiologists and pathologists did not attend any meeting.

Most cases (n = 1487, 80.4%) were brought by surgeons, either with academic (n = 871; 47.1%) or private (n = 616; 33.3%) practice. MDT meetings mainly resulted in a decision of curative-intent treatment (1243 cases; 67.8%). Surveillance was decided for 247 cases (13.4%). Diagnostic investigations (imaging or biopsy) were decided for 24 case presentations (1.3%). MDT meetings characteristics are detailed in Table 2.

**Table 2**  
MDT meetings characteristics.

Characteristics	n	%
Number of clinical cases discussed	1849	–
Total number of patients	1786	–
Total number of sessions	138	–
<i>Number of discussions per patient</i>		
Min	1	–
Max	4	–
One	1663	96.6
Two	52	3
Three	5	0.3
Four	1	0.1
<i>Number of cases discussed per meeting</i>		
Min	3	–
Max	32	–
Mean	16.0	–
<i>Medical specialist per meeting, Mean (Max)</i>		
Medical oncologist	1.6 (4)	–
Radiation oncologist	1.1 (3)	–
Surgeon	3 (8)	–
Pathologist	0 (0)	–
Nuclear Physician	0.4 (1)	–
Radiologist	0 (0)	–
Medical Junior Student	0.4 (4)	–
<i>Case Presentation</i>		
Academic Surgeon	871	47.1
Private Surgeon	616	33.3
Medical Oncologist	247	13.4
Radiation Oncologist	115	6.2
<i>Type of decision</i>		
Induction Chemotherapy	191	10.3
Surgery	392	21.2
Radiotherapy	323	17.5
Radio-Chemotherapy	347	18.8
Surveillance	247	13.4
Best Supportive Care	52	2.8
Surgery + Radiotherapy	27	1.5
Lasertherapy	37	2.0
Chemotherapy	153	8.3
Imaging Exam	9	0.5
Biopsy	15	0.8
Other	56	3.0

*Type of treatment before MDT*

Most patients were treated before MDT meetings (n = 969, 52.4%), mainly with surgery (n = 709, 73.2%) (Table 3).

*Impact of MDT on radiation treatment preparation time*

The mean time between MDT meeting and planning CT-scan was 9.8 days (range: 0–105). Mean time between planning CT-scan and first

**Table 3**  
Treatment before MDT meeting, and type of treatment performed.

Characteristics	n	%
Treatment before MDT meeting	1849	
Yes	969	52,4%
No	880	47,6%
If Yes, type of treatment before MDT meeting	969	52,4%
Surgery	709	73,2%
Chemotherapy	144	14,9%
Radiotherapy	3	0,3%
Laser	39	4,0%
Radio-Chemotherapy	15	1,5%
Surgery + Radiotherapy	5	0,5%
Surgery + Radio-Chemotherapy	12	1,2%
Surgery + Chemotherapy	42	4,3%

radiation course was 11.8 days (range: 4–19). Mean time between MDT meeting and first radiation course was 21 days (range: 1–116).

**Discussion**

The present study reflects the real-life aspects of a single institution HNC MDT meetings, with a 6-year follow-up. Patients had a median age of 62 years *versus* 55.5 years in a comprehensive review of phase III HNC radiation trials [11]. Regarding HNC chemotherapy trials, meta-analyses featured only 7.9% of patients with a performance status  $\geq 2$  *versus* nearly 40% in the present population [12]. Patients in phase III trials were therefore younger, healthier and could probably better bear aggressive treatments than the present real-life HNC patients. As evidence-based medicine and gold-standard treatments only rely on phase III trials, MDT should be a crucial element in HNC management in order to adapt and personalize state-of-the-art recommendations to patient's frailties.

Most MDT decisions proposed curative intent treatments and most patients were discussed only once in MDT meetings. However, frequent loco-regional and distant relapses were expected since more than half of the patients was diagnosed a locally advanced tumor [13]. This might suggest that relapsing and metastatic patients were rarely discussed in HNC MDT meetings. Cases were probably discussed in the local general oncology or pain management MDT meetings, but data were not collected in the present study. While metastatic and relapsing patients do have a poor prognosis [14,15], it was demonstrated that stage IV HNC cancer patients discussed in MDT had a better overall survival than patients treated without MDT (hazard ratio = 0.69, 95% CI = 0.51–0.88, P = 0.004) [9]. Furthermore, a second or third line treatment for metastatic patients [16] or a second surgery/radiation for locally relapsing patients can be more and more often successfully performed [17]. This confirms the necessary role of HNC MDT meetings at every stage of disease. The absence of radiologists and pathologists in MDT meetings should also be a concern as it might have a negative impact on the quality of the staging and diagnosis and thus on the treatment strategy. Better outcomes for esophageal cancer patients were reported when MDT integrated two radiologists and a pathologist [18]. Finally, the absence of other health professional (nutritionists, oral surgeons, nose and throat specialists) is also to be criticized, since such multidisciplinary approach was associated with better dental assessment, nutritional support, and functional results [19].

Finally, the present study suggests that the quality of MDT meetings should be carefully supervised. Although the beneficial impact of MDT on cancer outcome is frequently reported, the quality criteria of a good or poor-quality MDT meeting are still to be determined. Most literature highlights the importance on inter-physician relationship [20–22]. However, the present study suggests that basic elements about patient's frailties such as weight, addictions, or ECOG PS were rarely reported. Worst, more than half of the patients had surgery before being discussed at the MDT meeting despite the prevalence of locally advanced carcinomas. Although national recommendations theoretically integrate MDT meetings in every step of the patient's care, the information on MDT meetings role and place is therefore still to be improved [23].

Finally, the concern that MDT meetings could significantly delay treatment does not seem justified. In the present study, patients had a planning CT-scan in a mean time of 9.8 days from the MDT meeting and started 21 days (mean value) after MDT meeting. This delay included radiation treatment planning, dental treatments and nutritional support with an optional gastrostomy. Another French study estimated the median time between MDT meeting and treatment beginning at 35 days regardless of treatment nature, and 54.5 days if radiotherapy was indicated [24].

## Conclusion

Optimal multimodal treatment management is based on MDT meetings and results from the interaction and coordination of surgeons, medical and radiation oncologists. In the present series, most patients were discussed once despite the number of expected recurrences, suggesting that the management of tumor progression was not discussed in head and neck MDT meetings. Furthermore, most patients had surgery before MDT meeting, reflecting that the MDT meeting role and place still needs to be improved. Finally, the present population significantly differed from patients included in phase III clinical trials, with more advanced age and poorer condition. It certainly calls for the necessity of a high-quality Head and Neck MDT meeting, since evidence-based recommendations should be adapted to patient's frailties that were rarely reported in the present series.

## Conflict of interest statement

None declared.

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## Disclaimer

Views expressed in the present article are their own and not an official position of the institutions.

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